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PLANS FOR USE OF SPACE FOR ACTIVITIES AND STORAGE  
IN A GIVEN DINING AREA

by

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5282

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## CHAPTER I

### INTRODUCTION

In 1950, Campbell made An Evaluation Study of the Dining Area in Thirty Families in Greensboro, North Carolina. She chose business and professional families in three sections of Greensboro; those in each section having homes with dining areas of the same size and shape. Ten families who rented homes with a small dining area (7'6" x 5'6") were chosen from the Rosewood housing development. Ten families who owned homes with a medium-sized dining area (9'4" x 8'4") were chosen from the Guilford Hills development. Ten families who rented apartments with a large dining area (11'6½" x 10'9½") were chosen from Latham Park.

The purposes of her study were:

To find out what activities were carried on in the dining area.

To find out what furniture was used in these activities.

To find out how satisfactory the dining area as an alcove off the living area was for the activities which were performed there and for the storage of supplies and equipment needed for these activities.

To find out the satisfaction with the major physical features of the room.<sup>1</sup>

On the basis of her findings she included the following recommendations: (1) the size of the dining alcove should be 8' x 9' or larger, (2) the area should contain adequate storage facilities for furnishings

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1. Campbell, Catherine McLean, An Evaluation Study of the Dining Area in Thirty Families, Master's thesis, The Woman's College of the University of North Carolina, Greensboro, N. C., 1950, p. 2.



used for meals and other activities carried on there, (3) families living in such areas should have furniture that can be used for more than one purpose, (4) the alcove should be arranged so that privacy from the kitchen and living area may be obtained by use of folding doors, screens, movable storage cabinets, and the like, (5) windows and doors should be so placed that as much floor and wall space as possible is usable.<sup>2</sup>

The investigator felt a keen interest in designing the floor and storage space for a dining area which would meet the needs of these and other such families. The purpose of this study was to plan for the activities carried on by families in a specified dining area by designing functional storage units and effective arrangement of furniture, storage units, windows, and doors within the given floor space. Data from Campbell concerning the activities carried on by business and professional families in the dining area by all thirty families in the three developments were studied. To supplement Campbell, the investigator used data from other sources concerning the space for storing items in dining areas and the design of dining alcoves.

The area of the largest dining alcove studied by Campbell was chosen for study since only half of the ten families were satisfied with this size and since the investigator felt that more items should be stored in the dining area than the families stored there. Even more space might be desirable but would not be available. The size of this dining alcove

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2. Campbell, op. cit., p. 82.

compared favorably with the recommendations of Faulkner,<sup>3</sup> and Carter and Hincheliff.<sup>4</sup>

The Latham Park Apartments had dining alcoves with the following structural characteristics;  $11'6\frac{1}{2}" \times 10'9\frac{1}{2}"$  of floor space, one window, and one door leading into the kitchen (Figure 1). The area of floor space was 124 square feet.

The investigator accepted the limitations of 124 square feet of floor area, one window and one door, but reserved the right to change the shape of the dining alcove.

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3. Faulkner, Ray, Inside Today's Home, New York: Henry Holt and Company, 1954, p. 544.

4. Carter, Deanne G. and Hincheliff, Keith H., Family Housing, New York: John Wiley & Sons, Inc., 1949, p. 80.

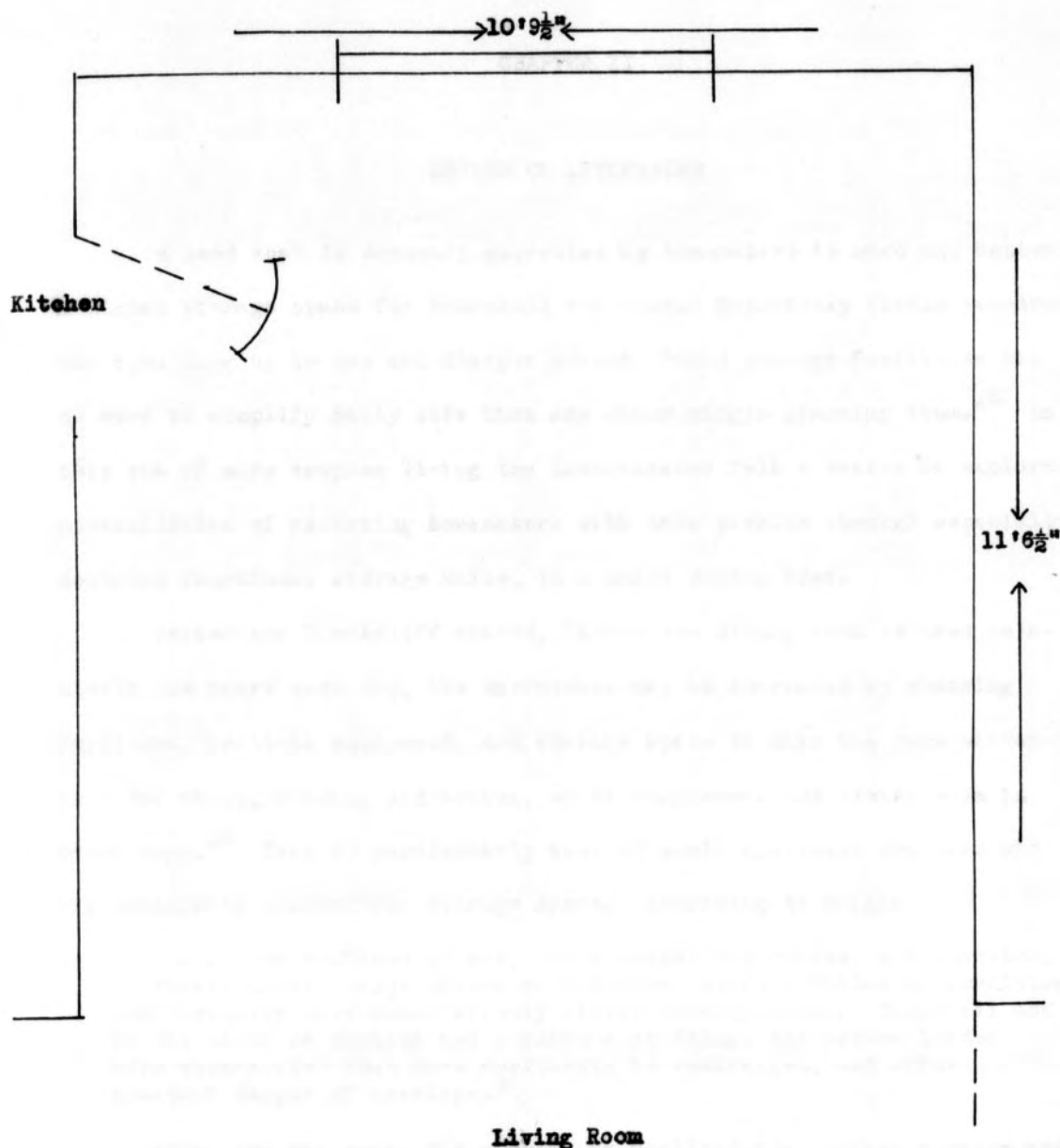


Figure 1. Floor Plan of Latham Park Apartment

Scale -  $\frac{1}{8}" = 1'$

## CHAPTER II

### REVIEW OF LITERATURE

A need that is commonly expressed by homemakers is more and better designed storage space for household articles. Relatively little research has been done up to now and Sleeper stated, "Good storage facilities can do more to simplify daily life than any other single planning item."<sup>5</sup> In this era of more complex living the investigator felt a desire to explore possibilities of assisting homemakers with this problem through especially designed functional storage units, in a small dining area.

Carter and Hincheliff stated, "Since the dining room is used relatively few hours each day, its usefulness may be increased by planning furniture, built-in equipment, and storage space to make the room convenient for study, reading and sewing, or to supplement the living room in other ways."<sup>6</sup> This is particularly true of small apartment dwellers who are invariably cramped for storage space. According to Wright

. . . we continue to use, for storage, end tables, and consoles, secretary desks, large cabinets, and other bulky articles of furniture that actually have comparatively little storage space. These all add to the labor of dusting and furniture shifting, and become loaded with accessories that must constantly be rearranged, and offer constant danger of breakage.<sup>7</sup>

After the war years the architects realized the storage problem and

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5. Sleeper, Catherine and Sleeper, Harold, The House for You to Build, Buy, or Rent, New York: John Wiley & Sons, Inc., 1948, p. 209.

6. Carter, Deanne G., and Hincheliff, Keith H., Family Housing, New York: John Wiley & Sons, Inc., 1949, p. 81.

7. Wright, Mary and Russel, Guide to Easier Living, New York: Simon & Schuster, 1950, p. 16.

began to design a new type of storage that they called, "differentiated storage," and created new types such as modular furniture, room dividers, storage walls and shelf systems. Nelson stated, ". . . the architects saw the problem as it was, sometimes to be solved with furniture, sometimes with architectural types of storage."<sup>8</sup>

Whatever the storage need, successful provision for it will accomplish several purposes. Agan stated, ". . . it will improve the sense of order and general appearance in the home and that it should facilitate the activities being carried on and preserve and protect the material being stored."<sup>9</sup> If storage is designed well, the design requires planning of arrangement of fixtures which will contribute to convenience, that is, near to the activity it serves, maximum reachability and availability, maximum visibility, orderliness and maximum use of space allotted.

The maximum shoulder to grasping finger tip reaches are:

Seventy-two inches as highest

Forty-eight inches - side to side

and

Twenty-four inches - lowest point

Agan stated,

The more there is to store in limited space, the harder it becomes to organize the place, tools, equipment, and other possessions so they can be easily located and brought into action.

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8. Nelson, George, Storage, New York: Whitney Publications, Inc., 1954, p. 9.

9. Agan, Tessie, The House Its Plan and Use, New York: J. B. Lippincott Company, 1948, p. 391.

The accelerated pace of present-day living necessitates such organization and access of goods stored in the home if things are to serve the household rather than hinder it.<sup>10</sup>

The American Public Health Association states that, "Improperly designed storage space automatically creates many hazards, and adequate storage space for frequently used articles should be so located that it can be reached by a person of average height standing on the floor."<sup>11</sup>

The housewife is faced with the problem of storage as a conservation of wealth. Some of it may not be negotiable at once but it represents an investment of time, effort, and money, and Field stated, ". . . its careful storage will release an equal amount of time, effort, and money for other investments."<sup>12</sup>

Bookshelves, if made adjustable, can house more books because waste space is eliminated. Wherever several shelves are installed, if possible, they should be movable for greater flexibility, whether for books, dishes, linen, or supplies. Sleeper stated, "This flexible feature may save at least one-third of closet volume for a useful purpose."<sup>13</sup>

A room appears at its maximum size when more of the furniture is placed against the wall so that there is as much free floor space as possible. Good arrangement is the art of successful furnishing. In the apartments studied the problem was how to get as much free space as

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10. Agan, Ibid.

11. American Public Health Association, Committee on the Hygiene of Housing Public Administration Service, Construction and Equipment of the Home, Chicago, Illinois: R. R. Donnelley & Sons, Company, 1951, p. 66.

12. Field, Dorothy J., The Human House, Boston: The Houghton Mifflin Company, 1939, p. 92.

13. Sleeper, op. cit., p. 222.



possible and still have good arrangement.

Several reasons for disliking dining rooms were given by a group of homemakers in Michigan and among those were inconvenience, clutter, and too much traffic going to other parts of the house. Out of this group of homemakers, 46 in all, nine thought that adding storage space or rearranging furnishings to achieve efficiency and to save steps would greatly improve the disliked room.

In a recently published report of Family Use of Farm Homes, there were buffets in thirty-seven out of forty dining rooms. A variety of items were stored; among them were: silver, linens, writing and sewing materials, hobby materials and keepsakes, financial records, clothing, books, and many miscellaneous items. The authors stated, "This varied use of buffets was usually explained by the homemaker as necessary because there was no other place downstairs in which to keep such items where they were readily available. This led to the opinion expressed by many wives that more storage space built into dining rooms would fulfill a definite need."<sup>14</sup>

Since the dining room must serve several purposes, it must contain all the features that make for comfort and livableness and like all rooms it should be inviting, not only for eating, but for reading, sitting, talking and writing. Livable rooms are those which are planned to meet the living requirements of a family unit. When the activities are compatible and can be grouped together in the same area, living in these

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14. Thorpe, Alice C., and Gross, Irma H., Family Use of Farm Homes, Michigan State College, Agricultural Experiment Station, East Lansing, Michigan, Technical Bulletin 227, April, 1952, p. 26.

rooms is much more enjoyable. Agan stated,

In considering storage, it is important to remember that it is not an end in itself, although satisfaction may be gained from an orderly arrangement. A system or plan of storage is worthwhile only when it results in some definite ultimate good for the family. If it results in family life going on with less friction, if it can make the work of the home lighter and thus release time and energy to be devoted to some other worthwhile activity, if a greater pride in the home results because of the order that comes from good storage, then it has resulted in an ultimate good. If lack of adequate storage creates a cluttered, confused background for family living, necessitates the added expenditure of time and energy in the dispatch of household tasks, and increases the stress and strain in family relationships day by day, it is extremely costly.<sup>15</sup>

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15. Agan, op. cit., p. 387.



### CHAPTER III

#### DATA BASIC TO PLANNING THE DINING AREA

In order to design a functional dining alcove it was necessary to know the activities carried on in that room, the furniture, furnishings, supplies and equipment used in those activities, and amount of floor and storage space needed for these items.

##### Activities

Of the thirty families in Campbell's study, all used the dining area for company meals and most of them for family meals and playing games (Table I). Tables I through VI were adapted from Campbell,<sup>16</sup> pp. 20, 25, 26, 40, 41, 45, 47, 53, 57, 58, 60, 62, 66, 67, 76. About half used the area for ironing and for office work and talking with visitors. Many used the area for study, reading and writing; for machine sewing, and for hobbies. A variety of activities were done by one family only.

For its major purpose, eating, the dining area was relatively inadequate. Only 60% of the families thought the dining area adequate for company meals; and 75%, for family meals. Most families thought it adequate for office work, study, reading and writing, and ironing. Relatively few families thought it adequate for playing games, machine sewing, hobbies and talking with visitors.

The investigator chose to plan floor space for those activities which occurred most frequently or for those for which the family thought

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16. Campbell, op. cit.

TABLE I  
USE OF DINING AREA FOR ACTIVITIES AND ITS ADEQUACY

Activity	Families using the dining area		Families who used the dining area and thought it adequate for the activity	
	Number	Percent	Number	Percent
Company meals	30	100	18	60
Family meals	29*	96	22	75
Playing games	26	86	19	75
Ironing	16	53	15	93
Office work	14	48	14	100
Talking with visitors	14	48	10	71
Study, Reading or Writing	12	40	12	100
Husbands	7			
Wives	11			
Children	2			
Machine sewing	11	33	8	72
Hobbies	7	23	5	71
Husbands	5			
Wives	3			
Children	1			
Decorating the Christmas tree	1	3	-	-
Listening to the radio	1	3	-	-
Dressing the children	1	3	-	-
Cutting out garments	1	3	-	-
Gift wrapping	1	3	-	-
Piano playing	1	3	-	-
Hand sewing	1	3	-	-

\*One family ate all family meals in the kitchen.

the area was inadequate:

- Company meals
- Family meals
- Playing games
- Ironing
- Office work
- Talking with visitors
- Study, reading and writing
- Machine and hand sewing

She also planned for the storage of miscellaneous items such as: Christmas tree decorations, gift wrappings, piano music, and materials used in hobbies. In doing so, the investigator has planned for more activities than only one family did in the dining area. She felt that since the dining table is a logical place for these activities more families would do them there if it were convenient to do so.

Furnishings and equipment used in activities in the dining area or stored in the dining area by one or two families, not provided for on the floor plans by the investigator were: washing machine, laundry cart, basket of unironed clothes, ironer, play pen, radio, piano, and movie screen. Suggestions were made concerning the adjustments individual families might make.

Not all families would do the same activities, but the space allowed for activities not done by a given family would be used for additional activities which are done by that family in the dining area.

Furniture, Furnishings, Supplies and Equipment,  
Used in Activities and for Storage

The table and chairs were the major pieces of furniture in the

dining area (Table II). In addition to being used by all of the thirty families for meals they were used for most of the other activities which went on in this area. A desk was used by only one family for study, reading and writing and one family used a desk for office work. It may have been the same family. Special equipment for ironing, sewing and/or recreation was found in one or more of the homes.

The china closet and buffet were the two most used pieces of storage furniture (Table III). There were seven china closets and five buffets. The other pieces of storage furniture kept in the dining area were a tea wagon, cedar chest, secretary, book case, chest, table, book shelf, sewing machine, and desk.

More families kept furnishings for both family and company meal service outside of the dining area than kept them in the dining area (Table IV). China, silver and glassware for family meal service were usually kept in the kitchen. China, silver and glassware for company meal service were kept in the kitchen, dining area, or a variety of places. The linen was kept in the linen closet. Three of the thirty families kept china for company meals in storage, one kept silver in storage and two kept glassware in storage.

Of the thirty families twenty had separate silver and glassware for company meals and twenty-seven had separate dishes. Having separate china, silver and glassware for company meals created a storage problem for most families. Since these items were stored in a variety of places or were in storage much time and energy was needed to assemble them for use or were not being used at all.

In summarizing the furniture and storage problem, all of the

TABLE II

## FURNITURE AND EQUIPMENT IN THE DINING AREA USED FOR ACTIVITIES CARRIED ON THERE

Activity	Dining table <sup>1</sup>	Card table	Sewing table	Straight Chairs <sup>2</sup>	Folding Chairs	High chair	Child's table and chairs	Play pen	Toys	Desk	Ironing board	Basket of unironed clothes	Ironer	Buffet	Sewing machine	Chest	Washing machine	Laundry cart	Movie screen	Piano	Radio
	(Number of families)																				
Company meals	30			29	1																
Family meals	27	1	1	26	1	14															
Playing games	17	3		19			1	1													
Children's play									4												
Ironing	15										2	2	1	1							
Talking with visitors <sup>4</sup>																					
Study, Reading or Writing	11			12						1											
Machine sewing	11	1		11											1	1					
Washing <sup>3</sup>																	1	1			
Hobbies	4	1		4															1		
Decorating the Christmas tree <sup>4</sup>																				1	
Piano playing <sup>4</sup>																					
Listening to the radio <sup>4</sup>																					1
Dressing the children <sup>4</sup>																					
Cutting out garments <sup>4</sup>																					
Gift wrapping <sup>4</sup>																					
Hand sewing <sup>4</sup>																					
Storing children's wheeled toys																					

FURNITURE AND EQUIPMENT IN THE DINING AREA USED FOR ACTIVITIES CARRIED ON THERE

1. Fifteen families had a regular dining table; ten had a drop leaf table, two had a dinette table and one had both a drop leaf and dinette table.
2. Five families kept two chairs, four families kept three chairs, fifteen kept four chairs, three kept five chairs and two kept six chairs in the dining area.
3. The family who kept the washing machine there moved it into the kitchen to do her laundry.
4. Furniture used in these activities was not stated.

TABLE III

## STORAGE FURNITURE IN THE DINING AREA FOR SUPPLIES USED IN ACTIVITIES CARRIED ON IN THE DINING AREA

STORAGE FURNITURE IN THE DINING AREA FOR DIFFERENT TYPES OF ACTIVITIES												
Activity	Supplies	Storage furniture										
		China Closet	Tea Wagon	Cedar Chest	Secre- tary	Book Case	Buffet	Chest	Tables	Book Shelf	Sewing Machine	Desk
(Number of families)												
Company eating	China	7			1a	1	1					
	Silver	1	1a			1	4a	2				
	Glassware	6b			1	1	1					
	Linen			1		1	5a	1				
	Trays	2			1	1	1					
	Candlesticks	2a				1	1					
	Vases	1				1						
Family eating	China	1										
	Silver		1			1		1				
	Glassware	1				1						
	Linen			1	1a		5	1				
	Trays	2a					1					
	Candlesticks					1						
Playing games	Vases	2					1					
	Cards				1		2	1	1	1		1
	Score pads				1		2	1	1	1		1
	Pencils				1		2	1	1	1		1
	Other games, toys						1			1		
Study, Reading and Writing*	Books					2	2			1a		1
	Paper						1					1
	Writing material						1					1
Ironing	Iron						1					
Machine Sewing	Sewing box						1	1			1	
	Patterns						1	1				
	Materials						2	1				
Office work												1

\*Four different families

a One of these families considered the storage space inadequate.

b Four of these families considered this space inadequate. All four families who kept toys on the floor thought the space inadequate. One of two who kept ironing board and unironed clothes behind the door thought the space inadequate.



TABLE IV

## STORAGE PLACE FOR FURNISHINGS USED IN MEAL SERVICE IN DINING AREA

Meals	Storage furniture in dining area	Storage outside the dining area					
		Kitchen	In storage	Living Room	Bedroom	Linen Closet	All over the house
(Percent of families)							
Company meals							
China	36	43	10	3	-	-	-
Silver	30	50	3	3	7	-	-
Glassware	30	53	7	3	-	-	-
Linen	23	-	-	-	3	63	-
Trays	17	20	-	7	3	10	3
Candlesticks	13	7	-	3	3	7	3
Vases	7	17	-	7	3	13	10
Family meals							
China	3	97	-	-	-	-	-
Silver	10	90	-	-	-	-	-
Glassware	7	93	-	-	-	-	-
Linen	26	3	-	-	-	70	-
Trays	13	70	-	3	3	-	3
Candlesticks	3	67	-	7	7	7	3
Vases	10	37	-	7	-	20	13



families had dining tables and chairs; half of them had a high chair, and either a china closet or buffet (Table V). The thirty families also had one other item per family of furniture or equipment that took up floor space. Of the few families who had storage in the dining area for furnishings used in meal service almost all considered the space adequate. While none of the storage outside the dining area was considered adequate by a large proportion of families, storage for silver and candlesticks was considered good; for china, glassware, and vases was considered fair; for trays was poor; and for linen storage varied from very good to poor (Table VI).

In her design for the dining area, the investigator chose to plan for the dining table, four and six chairs, a high chair, one or two pieces of storage furniture and for the ironing board to be set up temporarily. She chose to store the furnishings used in company meal service in the dining area for convenience.

#### Amount of Storage and Floor Space Needed

The method of arriving at dimensions of areas for storage of different groups of items varied. In some cases actual measurements of items were used. In other cases dimensions given by authorities were used with some adjustment by the investigator. In other cases the dimensions were estimated by the investigator.

A list of the dinnerware used for company meal service was obtained from a family in the Latham Park Apartments. This list was compared with one by Heiner and McCullough (Table VII). The items were similar. In their study ninety-five items of dinnerware (service for

TABLE V

FURNITURE AND EQUIPMENT IN THE DINING AREA  
AND THE NUMBER OF ACTIVITIES FOR WHICH IT IS USED

Furniture and Equipment	Number of families having	Number of activities for which used
Dining table	30	8
Straight chairs	30	7
High chair	14	1
China closet	7	*
Tea wagon	1	*
Cedar chest	1	*
Secretary	1	*
Bookcase	1	*
Book shelf	1	*
Tables	1	*
Toys	4	1
Ironing board	2	1
Basket of unironed clothes	2	1
Card table	1	4
Folding chairs	1	3
Desk	1	2
Child's table and chairs	1	2 a
Play pen	1	1
Buffet	1	1
Sewing machine	1	1
Sewing table	1	1
Chest	1	1
Ironer	1	1
Washing machine	1	1
Laundry cart	1	1
Movie screen	1	1
Piano	1	1
Radio	1	1

\*Used for storage, not in the activity itself.

a. The child's table and chairs are used in play as well as in eating.

TABLE VI

ADEQUACY OF STORAGE OUTSIDE DINING AREA FOR FURNISHINGS  
USED FOR MEAL SERVICE IN THE DINING AREA

Activity	Supplies	Storage place				
		Kitchen	Linen Closet	Living Room	Bedroom	All over the house
(percent of families)						
Company meals						
	China	38	-	0	-	-
	Silver	50	-	0	50	-
	Glassware	38	-	0	-	-
	Linen	-	46	-	-	-
	Trays	17	-	0	-	0
	Candlesticks	50	-	50	-	0
	Vases	40	-	50	-	33
Family meals						
	China	34	-	-	-	-
	Silver	54	-	-	-	-
	Glassware	21	-	-	-	-
	Linen	0	70	-	-	-
	Trays	48	-	0	-	0
	Candlesticks	50	71	-	50	0
	Vases	17	67	-	-	50

TABLE VII

## CHINA AND GLASSWARE

List of ninety-five items stored by Heiner & McCullough <sup>17</sup>		Latham Park Apartment Family list	
<u>China</u>	63	<u>China</u>	54
Individual pieces	56	Individual pieces	48
8 dinner or luncheon plates		same	
8 breakfast (salad or dessert) plates		same	
8 bread and butter or pie plates		same	
8 soup or cereal bowls		8 dessert plates	
8 fruit or sauce dishes		compote	
8 cups		same	
8 saucers		same	
Service pieces	7	Service pieces	6
2 open vegetable bowls		one	
2 platters, 1 medium, 1 small		three, medium or small	
1 sugar bowl and cream pitcher		gravy boat	
1 chop or cake plate		covered vegetable dish	
<u>Glassware</u>	32	<u>Glassware</u>	36
Individual pieces	24	Individual pieces	26
8 iced tea glasses, 10 oz.		10 goblets	
8 milk or water glasses, 8 oz.		10 goblets	
8 fruit juice glasses, 4 oz.		6 highball	
Service pieces	8	Service pieces	10
1 milk pitcher, 1 qt.		1 glass pitcher (mixer)	
1 water pitcher, 2 qt.		1 ice bucket (alum)	
2 small bowls, condiment or jelly		1 straw basket	
1 set pepper and salt		no substitution*	
1 tea pot, 6 cup		8 coaster trays	
1 coffee maker, 6 cup		1 cruet set	
<u>Total</u>	95	<u>Total</u>	95
<u>China</u>	63	<u>China</u>	54
Individual	56	Individual	48
Service items	7	Service items	6

TABLE VII (Continued)

## CHINA AND GLASSWARE

List of ninety-five items stored by Heiner and McCullough <sup>17</sup>		Latham Park Apartment Family list	
Total (Continued)		Total (Continued)	
Glassware	32	Glassware	36
Individual	24	Individual	26
Service items	8	Service items	10

\*To be stored in drawer for hollowware

17. Heiner, Mary Koll and McCullough, Helen E., Functional Kitchen Storage, Cornell University, Ithaca, New York, Agricultural Experiment Station Bulletin 846, June, 1948, p. 57.

eight) were stored on five shelves within a thirty-six inch high section of a cabinet, with a depth of sixteen inches and a width of twenty-four inches. The area of this cabinet was 13,824 cubic inches.

McCullough<sup>18</sup> has a later publication which lists space recommendations for all types of household goods. The investigator wished to use this source in planning the dimensions for other items (Table VIII). Therefore, it seemed desirable to compare the recommendation for space for storing dinnerware quoted above with the recommendation in Space Design for Household Storage, which allows for service for twelve persons. The space recommended for service for eight persons was approximately two-thirds of the space recommended for storage of service for twelve persons.

As a more thorough check the investigator planned the cabinet space for the dinnerware owned by the Latham Park Apartment family. The area of the cabinet was 13,536 cubic inches which compared favorably with McCullough's two recommendations. (Figures 2, 3, 4, 5, 6, 7, 8, 9). The shelf arrangement was different to accommodate the dishes of the particular family.

McCullough did not list space requirements for flat silver in this publication. Dimensions for storage of flat silver were taken from an Arizona<sup>19</sup> study, which provided for service for twelve persons and a

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18. McCullough, Helen E., Space Design for Household Storage, University of Illinois, Urbana, Illinois, Agricultural Experiment Station Bulletin 557, August, 1952, p. 30.

19. Johnson, B. Eleanor and Hurley, Elizabeth, Indoor Dining Areas for Rural Homes in the Western Region, Report No. 118, Agricultural Experiment Station, University of Arizona, Tucson, Arizona, June, 1955, p. 13.



TABLE VIII

## AMOUNT OF STORAGE SPACE NEEDED

Activity	Items stored	Data from recognized authorities				Comment
		Depth	Width	Height	Cu. In.	
				est.		
Company meals	Dinnerware and glassware for 12 persons - 165 items	12"	36"	47"	20304	Shelves 12" in depth, principles of additional storage, clear visibility, ready access
	Table linen	24"	36"	37"	31968	
	Silver (flat) 12 persons	12 $\frac{1}{4}$ "	22"	35/8"	1684.37	Provided for for liberal of guest silver
	Silver (hollowware)	-	-	-	-	-
	Trays, platters, chop plate, large flower bowls	16"	24"	9"	3456	2" between shelves, horizontal shelves
Playing games	Table games	-	-	-	-	-
	Toys	12"	48"	48"	27648	
Ironing	Iron and ironing supplies	-	-	-	-	-
	ironing board	-	-	-	-	-
Office work	Portable typewriter compartment	16"	16"	10"	(13824)	-
	Portable typewriter	11"	15"	(		
	Shelves and drawers for supplies	16"	16"	44"		
Talking with visitors	None	-	-	-	-	-
Study, reading and writing	Desk supplies on shelf	12"	36"	44"	19008	-
	Books	10"	24"	84"	20160	Adjustable shelves essential
	Magazines	12"	24"	84"	24192	8" depth will 4 tiers

## BLE VIII

## ORAGE SPACE NEEDED

Recognized authorities			Adjustments made by investigator				
n.	Comment	Source	Depth	Width	Height	Cu. In.	Comment
	Shelves 12" met principles of functional storage - clear visibility and ready accessibility	McCullough, p. 30	12"	24"	47"	13536	Sizes and items from occupant Space 2/3rds of McCullough
		McCullough, p. 30	16"	24"	27"	10368	1/3rd
37	Provided for storage for liberal supply of guest silver	Arizona, p. 26	12"	24"	4"	1152	2/3rds
	-		12"	24"	6"	3456	Sizes and items from occupant
	2" between shelves horizontal shelves	McCullough, p. 31	16"	24"	9"	3456	Trays only - other items stored with dinnerware
	-	-	8"	24"	5"	960	Estimated
		McCullough, p. 22	8"	24"	17½"	3360	Estimated for toys used in living-dining area
	-	-	12"	24"	15"	4320	Estimated
	-	-	4"	24"	72"	6912	Estimated
	-	McCullough, p. 21	16"	(14")	12")		1/3rd
				( )	( )		
			11"	(13½")	7")	4608	
			16"	(10")	6")		
	-	-	-	-	-	-	-
	-	McCullough, p. 12	16"	24"	16½"	6336	1/3rd
	Adjustable shelves essential	McCullough, pp. 12 and 19	8"	24"	31"	6720	1/3rd
	8" depth will take 4 tiers	McCullough, pp. 13 and 20	8"	24"	13"	8064	Tier section for current magazines



TABLE VIII (Conti

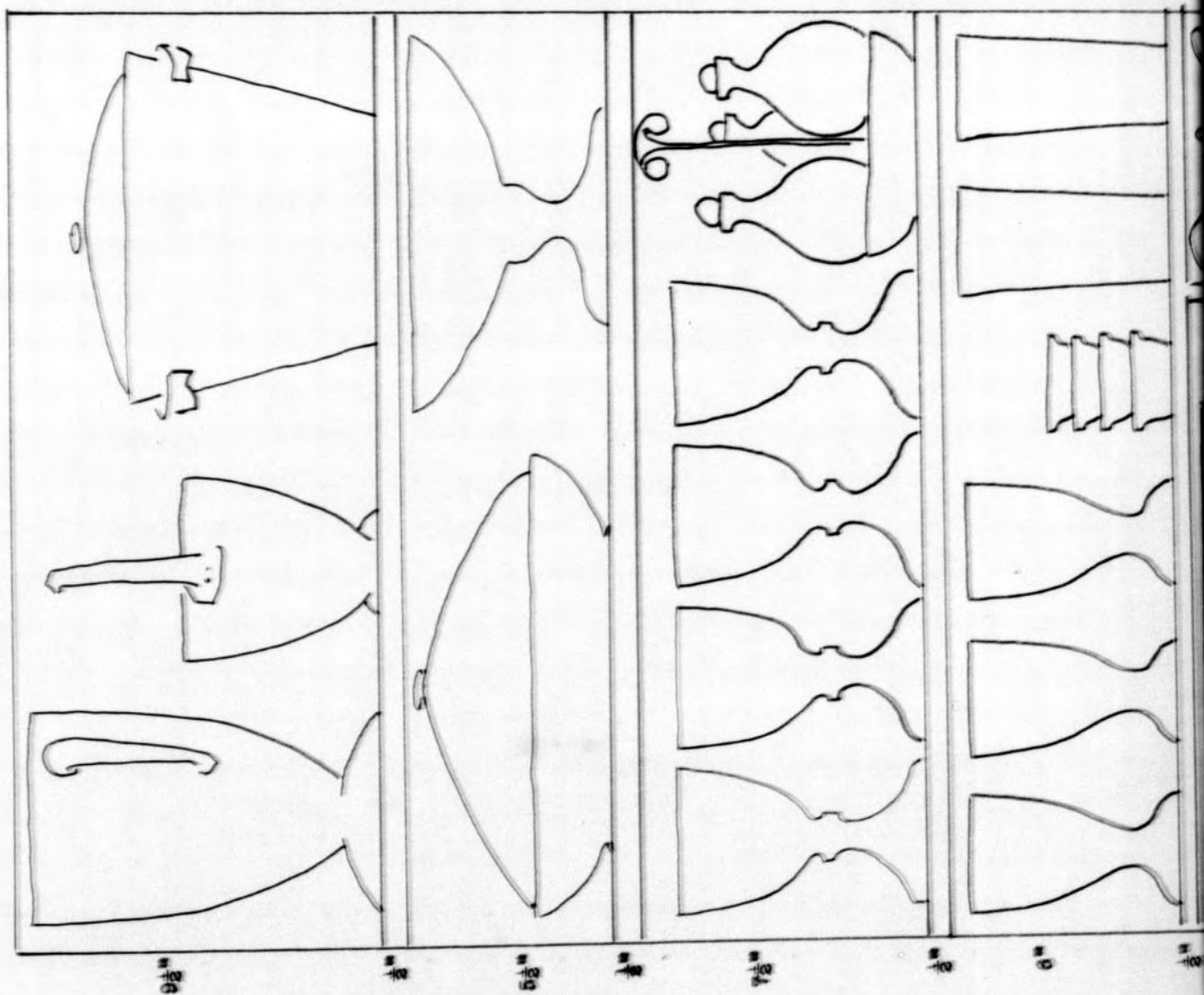
AMOUNT OF STORAGE SP

Activity	Items stored	Data from recognized			Cu. In.	Comme
		Depth	Width	Height est.		
Machine sewing	Complete unit with port- able machine					
	Compartment for portable	24"	24"	16" )		
	Portable alone	8"	16"	12 $\frac{1}{2}$ " )		
	Sewing supplies	24"	24"	68" )	48384	Door used f storage
	Dress form and garment compartment	24"	24"	84"		
Sewing supplies	Sewing supplies for hand and small amount of machine sewing	13 $\frac{1}{4}$ "	18"	26"	6912	
Miscellaneous	Hobbies	-	-	-)		
	Christmas tree decorations	12"	16"	)		
	Gift wrapping			)		
	Piano music			)		

## TABLE VIII (Continued)

## TABLE OF STORAGE SPACE NEEDED

From recognized authorities			Adjustments made by investigator				
n.	Comment	Source	Depth	Width	Height	Cu. in.	Comment
	Door used for storage	McCullough, p. 42	12" 9½"	24" 20½"	16" 14"	4608	The space was more than could be accommodated in area of dining room
		Slaughter, p. 48	12"	24"	24"	6201	
		McCullough, p. 11.	12"	24"	12"	3456	Approximately same dimensions but space rearranged.



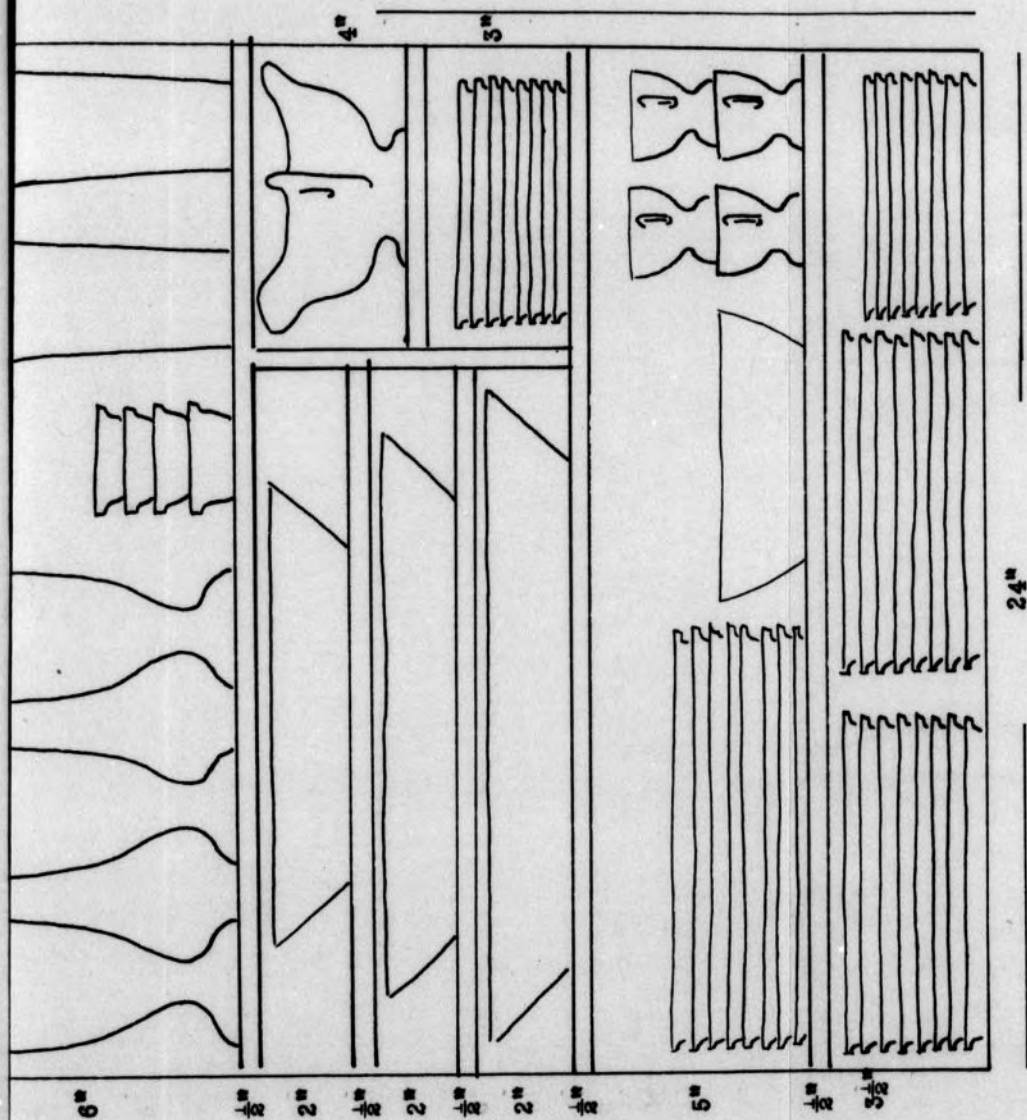


Figure 2. Dinnerware Section of Storage Unit

Scale -  $\frac{1}{4}" = 1"$



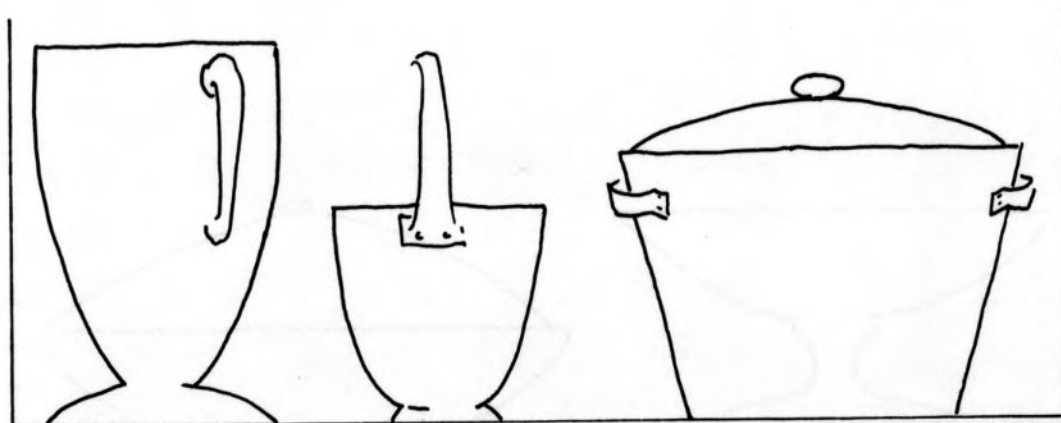
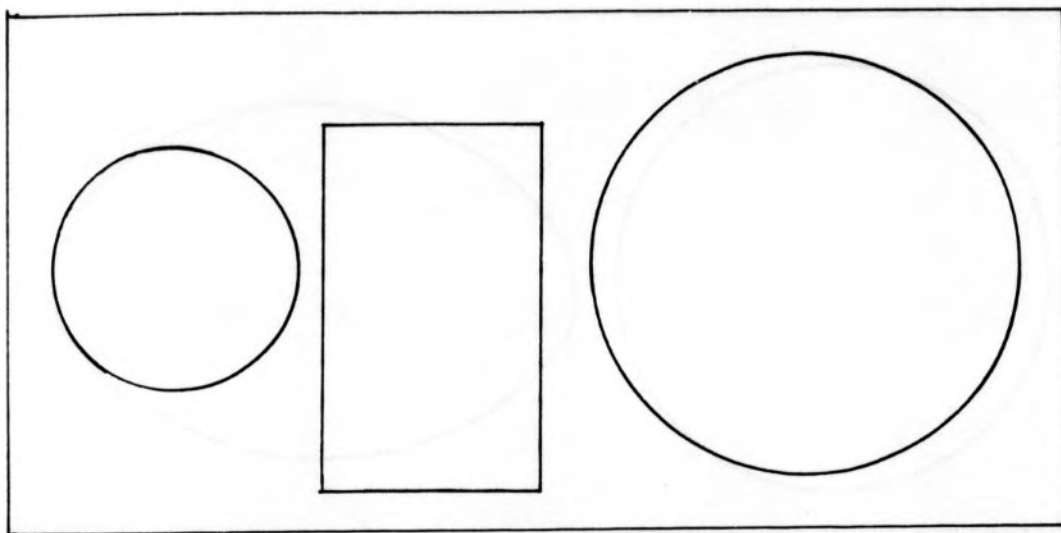


Figure 3. Top Shelf

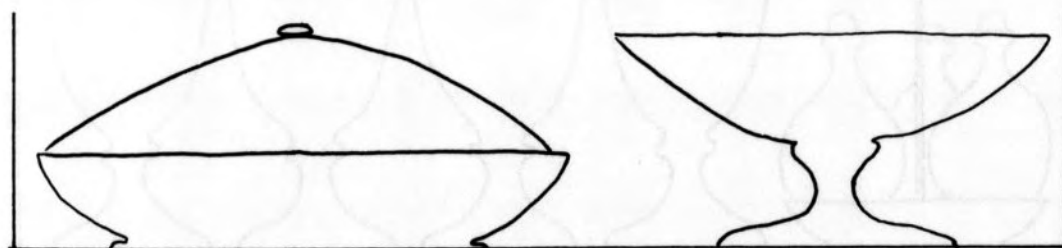
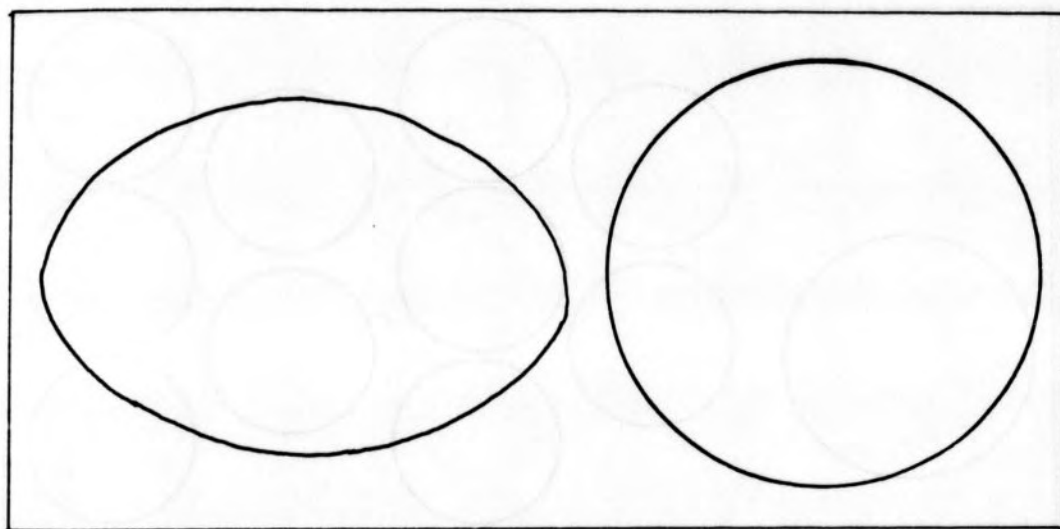


Figure 4. Second Shelf

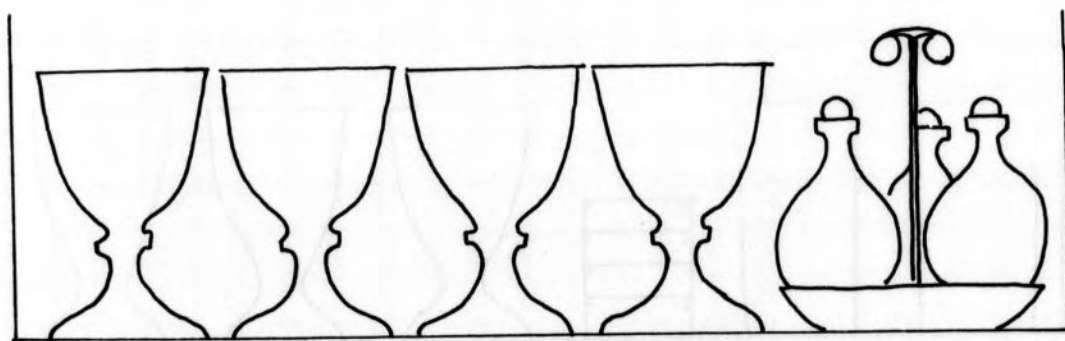
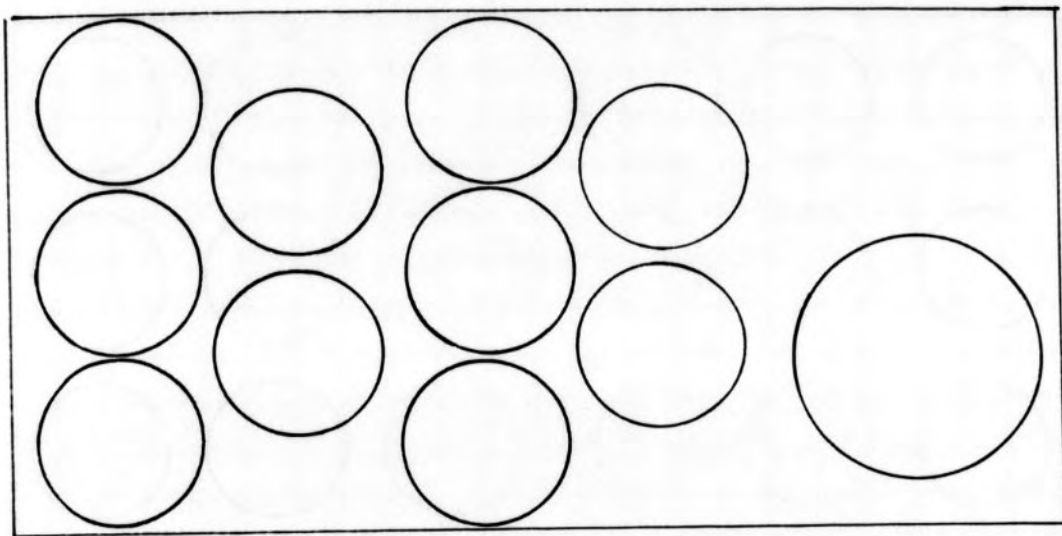


Figure 5. Third Shelf

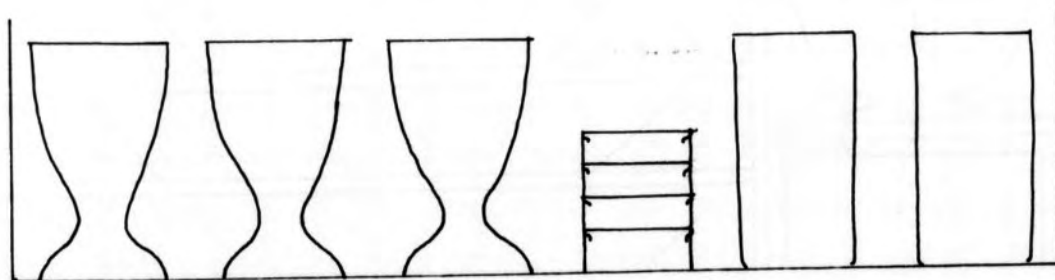
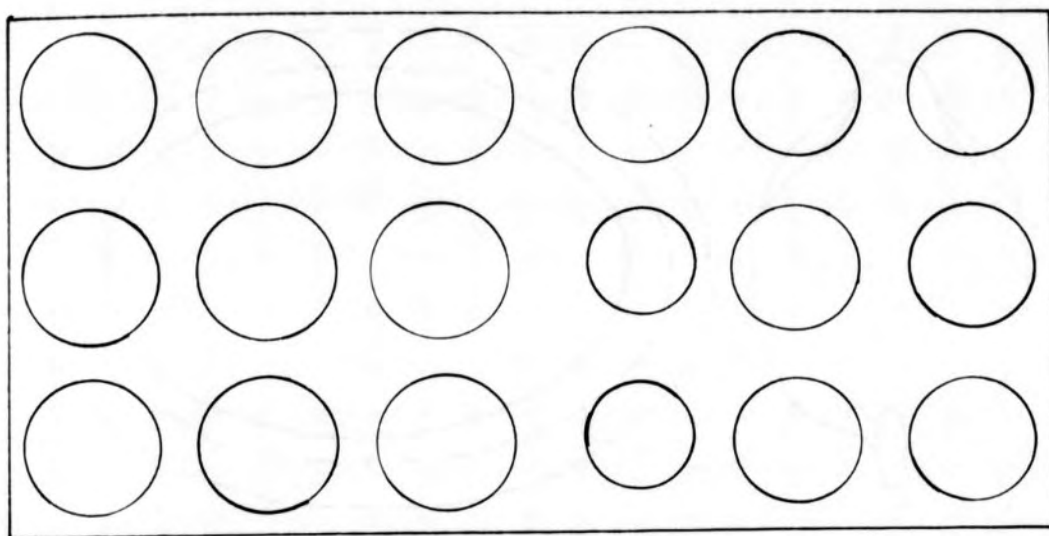


Figure 6. Fourth Shelf



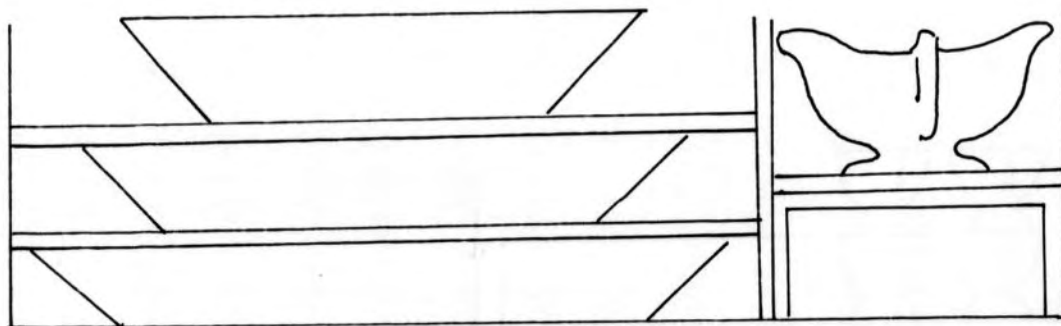
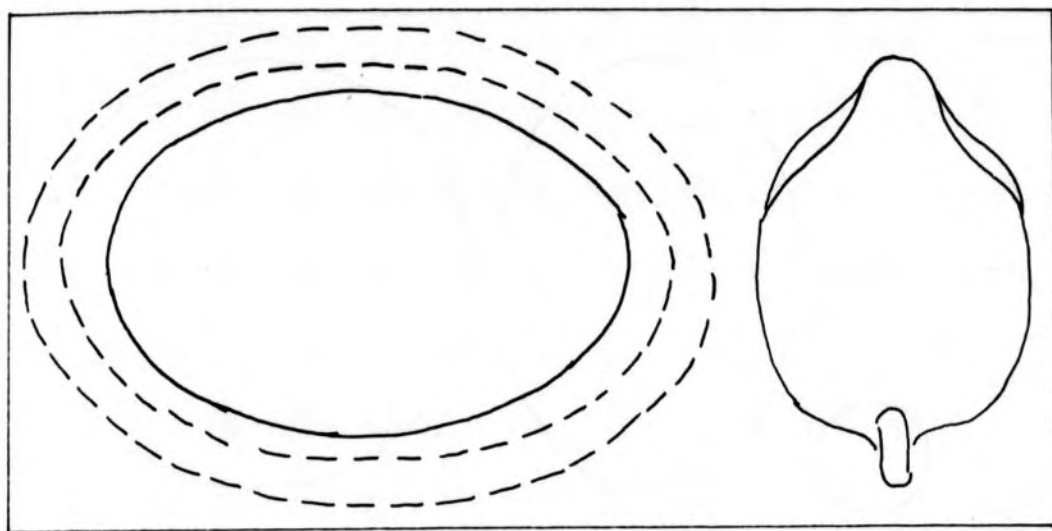


Figure 7. Fifth Shelf

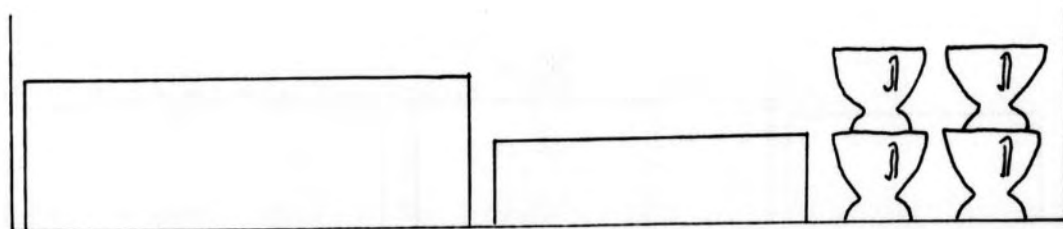
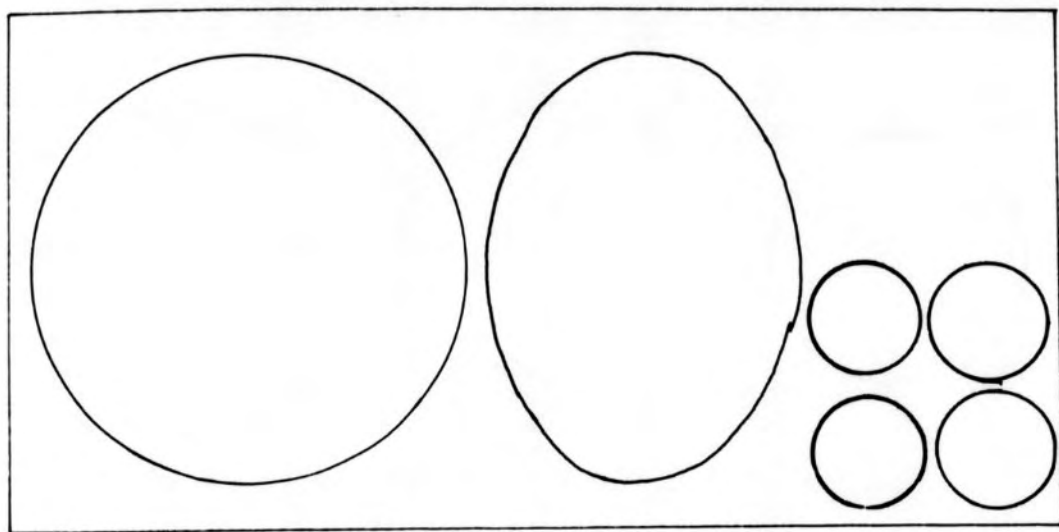


Figure 8. Sixth Shelf

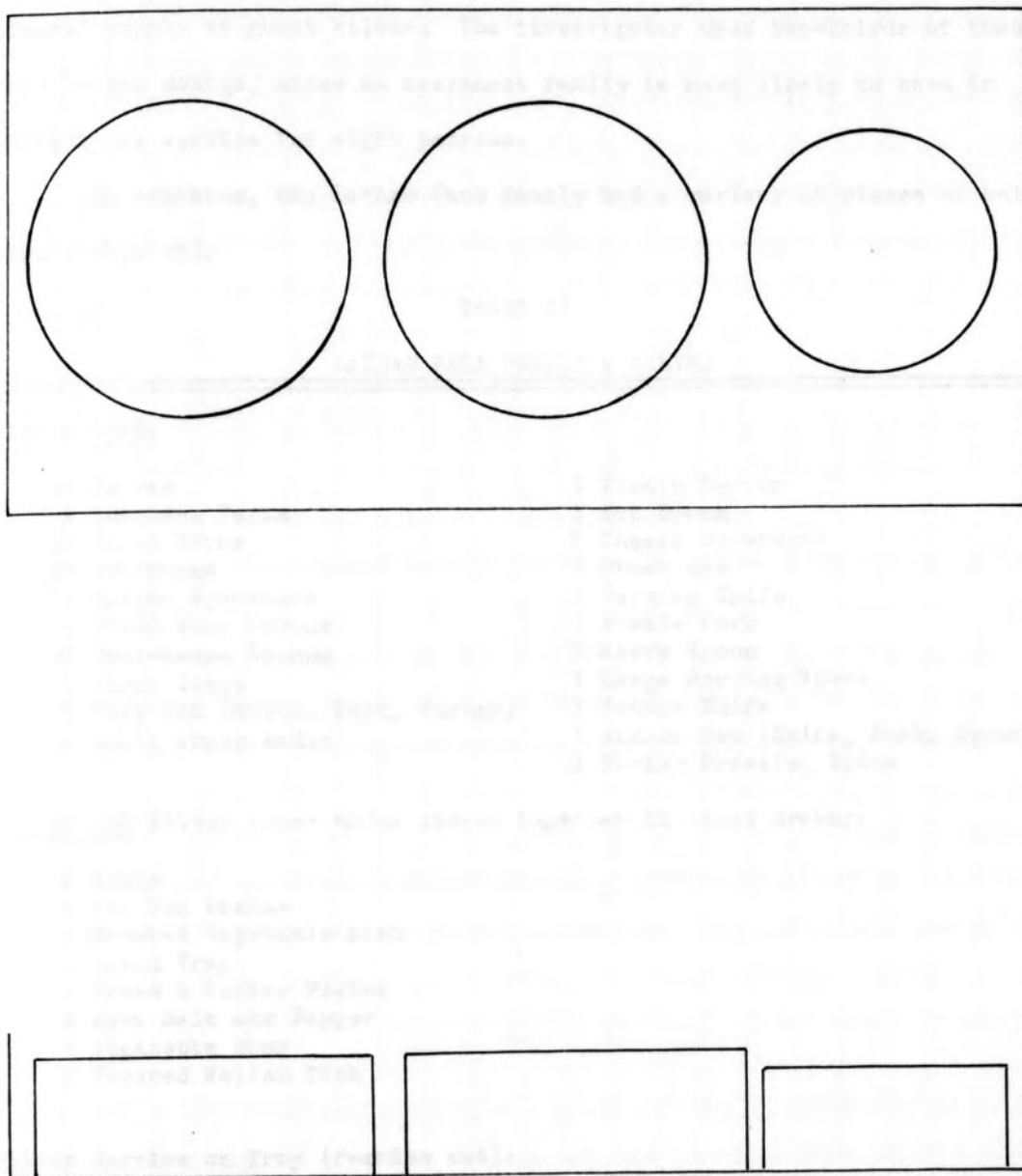


Figure 9. Seventh Shelf

liberal supply of guest silver. The investigator used two-thirds of that area in her design, since an apartment family is more likely to have in current use service for eight persons.

In addition, the Latham Park family had a variety of pieces of hollow-ware (Table IX).

TABLE IX

## LATHAM PARK FAMILY'S SILVER

FLAT SILVER:

10 Knives	1 Tomato Server
9 Luncheon Forks	1 Nut Spoon
13 Salad Forks	2 Cheese Spreaders
14 Teaspoons	1 Steak Set
9 Butter Spreaders	1 Carving Knife
8 Cream Soup Spoons	1 Pickle Fork
12 Demi-tasse Spoons	1 Berry Spoon
1 Sugar Tongs	1 Large Serving Spoon
1 Baby Set (Spoon, Fork, Pusher)	1 Butter Knife
1 Small Gravy Ladle	1 Junior Set (Knife, Fork, Spoon)
	1 Turkey Dressing Spoon

HOLLOWWARE: Silver items to be stored together in lined drawer:

- 2 Bowls
- 6 Bon Bon Dishes
- 1 Covered Vegetable Dish
- 1 Bread Tray
- 4 Bread & Butter Plates
- 3 Sets Salt and Pepper
- 2 Cigarette Urns
- 1 Covered Relish Dish

## Silver Service on Tray (remains out):

- Tea and Coffee Pot
- Cream Pitcher
- Sugar Bowl
- Three sets Candlesticks

The investigator designed two drawers for these items (Figure 10). The drawers were planned to be lined with tarnish resistant cloth to protect the silver.

For trays, all of the space recommended by McCullough was used by the investigator. The space will accommodate four large trays, or platters.

The Latham Park family's table linen with sizes of napkins and place mats are given (Table X).

TABLE X

## LATHAM PARK FAMILY'S TABLE LINEN

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1 Lace Table Cloth	1 Table Runner
2 Bridge Cloths	28 Mats - 18 x 11
1 Linen Table Cloth	72 Napkins, sizes 12, 14 & 18 inches
1 Damask Table Cloth	8 Cocktail Napkins

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The supply of linen allowed for many different types of entertaining. On the basis of this family's linen supply, the investigator felt justified in taking one-third of the total space recommended by McCullough for table linens since young married families living in apartments are not likely to have an abundant supply of table linens in current use.

The area used by the investigator for storage of supplies for office work and for study, reading and writing was one-third of McCullough's since it seemed reasonable to assume that young families in apartments would not use a greater proportion of available space for these items.

For sewing, all the space allowed by McCullough for storage of a portable sewing machine was used. The complete sewing unit shown by McCullough allowed half of the space for dress form and hanging garments

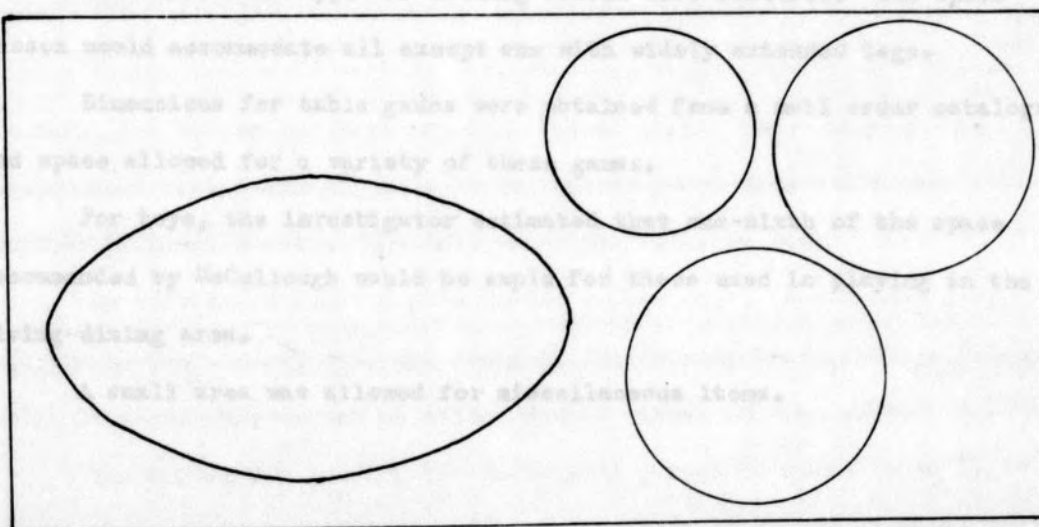
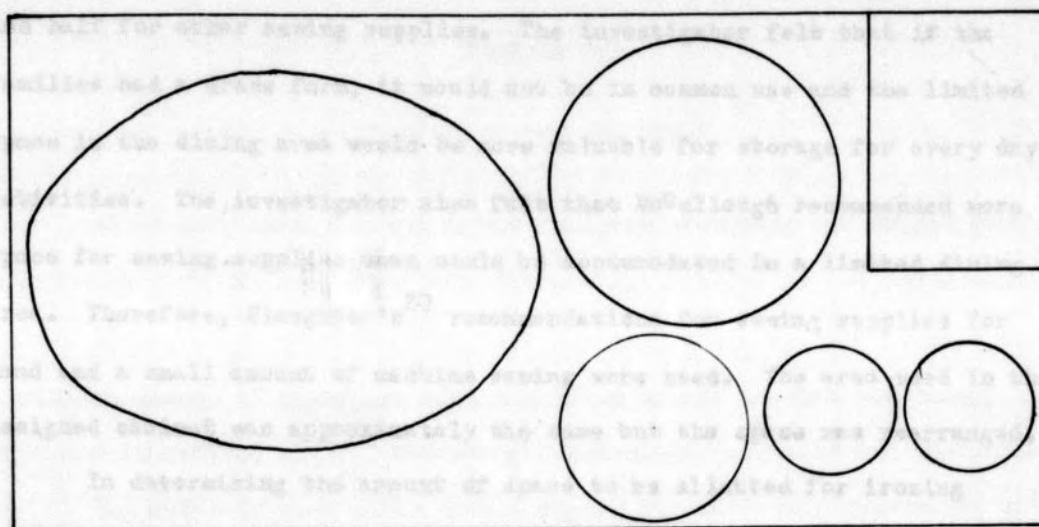


Figure 10: Drawers for Hollowware

20. Shugart, E. H. State College, Kansas, Agricultural Experiment Station Bulletin 497, June, 1934, p. 35.



and half for other sewing supplies. The investigator felt that if the families had a dress form, it would not be in common use and the limited space in the dining area would be more valuable for storage for every day activities. The investigator also felt that McCullough recommended more space for sewing supplies than could be accommodated in a limited dining area. Therefore, Slaughter's<sup>20</sup> recommendations for sewing supplies for hand and a small amount of machine sewing were used. The area used in the designed cabinet was approximately the same but the space was rearranged.

In determining the amount of space to be allotted for ironing supplies, measurement of a dry or steam iron was taken. Space allowed for various other ironing supplies was estimated since it is difficult to define each item to be stored by an individual family.

Five different types of ironing boards were measured. The space chosen would accommodate all except one with widely extended legs.

Dimensions for table games were obtained from a mail order catalogue and space allowed for a variety of these games.

For toys, the investigator estimated that one-sixth of the space recommended by McCullough would be ample for those used in playing in the living-dining area.

A small area was allowed for miscellaneous items.

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20. Slaughter, Margaret C., Sewing Centers for the Home, Montana State College, Bozeman, Montana, Agricultural Experiment Station Bulletin 497, June, 1954, p. 48.



## CHAPTER IV

### DESIGN OF STORAGE UNITS

Since more than a third of the families occupying the Latham Park Apartments were not satisfied with the storage facilities for items used in the dining area, storage units were designed which would be usable in a minimum amount of space and with a minimum amount of time and energy expended in getting out and returning furnishings, supplies and equipment.

Two multi-purpose units were designed for the small apartments as a movable room divider (Figure 11). By designing the storage units only seventy-two inches high; a feeling of more spaciousness was achieved, and heating ventilation and light were improved. Both were twenty-four inches wide. They were also twenty-four inches deep, opening to both dining and living areas, depths of various sections were eight, twelve, and sixteen inches. The supporting base was four inches high. These storage units would store more items and take up less floor space than would the variety of small storage furniture which the families had.

An additional section seventy-two inches high, four inches deep, and twenty-four inches wide was designed for ironing board storage (Figure 12). It might be attached to either end of either storage unit.

The spaces for storing the individual groups of items in or near the dining area were organized. In placing items or groups of items the principles of functional storage; easy accessibility, clear visibility, and storage at point of first use were used. All objects were within comfortable reach and stored at heights so that the heaviest items, portable sewing machine and portable typewriter, were as near as possible to waist

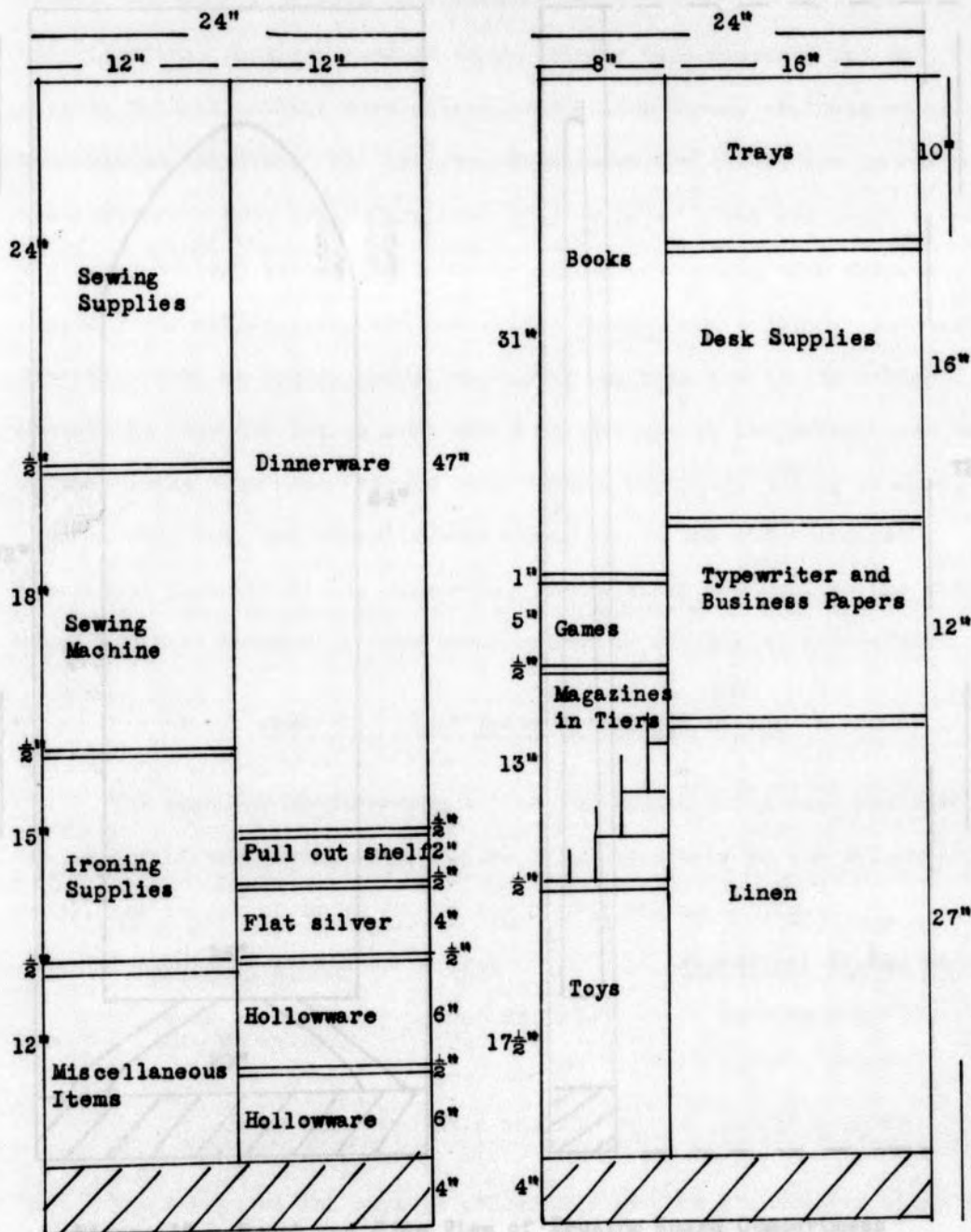


Figure 11. Side View of Storage Units

Scale -  $3/32" = 1"$

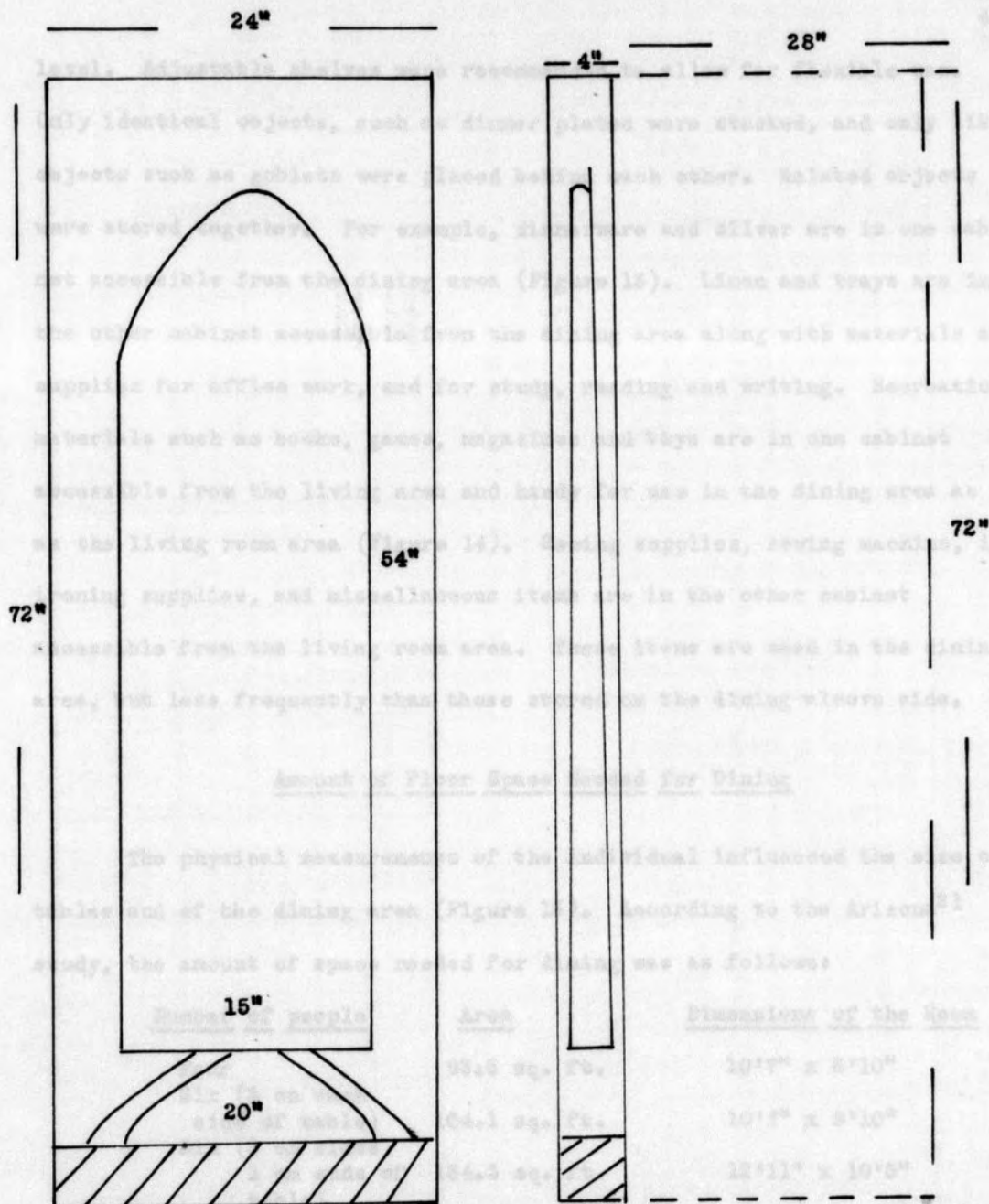


Figure 12. Front and Side View of Ironing Board Compartment

level. Adjustable shelves were recommended to allow for flexible use. Only identical objects, such as dinner plates were stacked, and only like objects such as goblets were placed behind each other. Related objects were stored together. For example, dinnerware and silver are in one cabinet accessible from the dining area (Figure 13). Linen and trays are in the other cabinet accessible from the dining area along with materials and supplies for office work, and for study, reading and writing. Recreational materials such as books, games, magazines and toys are in one cabinet accessible from the living area and handy for use in the dining area as well as the living room area (Figure 14). Sewing supplies, sewing machine, iron, ironing supplies, and miscellaneous items are in the other cabinet accessible from the living room area. These items are used in the dining area, but less frequently than those stored on the dining alcove side.

#### Amount of Floor Space Needed for Dining

The physical measurements of the individual influenced the size of tables and of the dining area (Figure 15). According to the Arizona<sup>21</sup> study, the amount of space needed for dining was as follows:

<u>Number of people</u>	<u>Area</u>	<u>Dimensions of the Room</u>
Four	93.5 sq. ft.	10'7" x 8'10"
Six (3 on each side of table)	104.1 sq. ft.	10'7" x 9'10"
Six (2 on sides 1 on ends of table)	134.5 sq. ft.	12'11" x 10'5"

The furniture and passage allowances used in the Arizona study and

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21. Johnson and Hurley, op. cit., pp. 10, 11, 12.



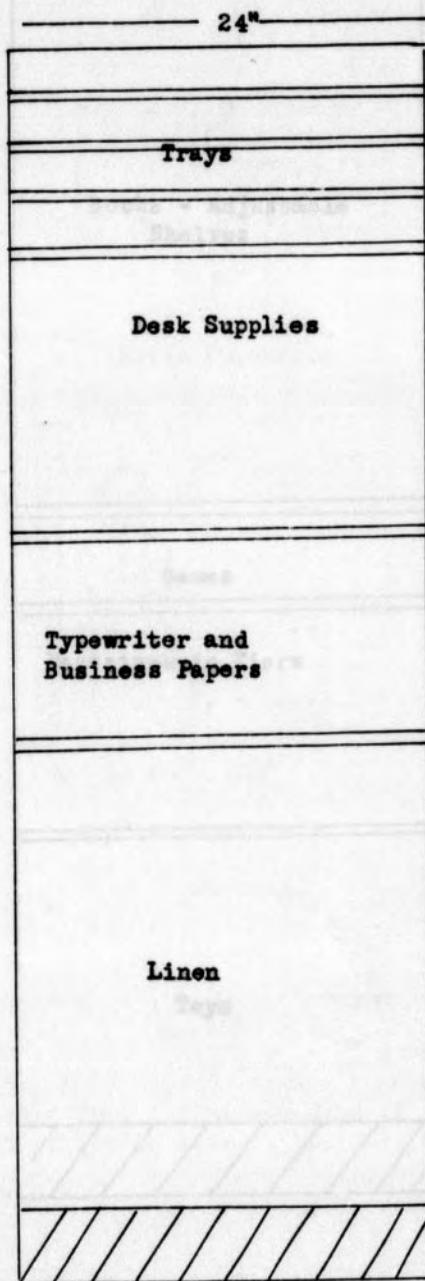
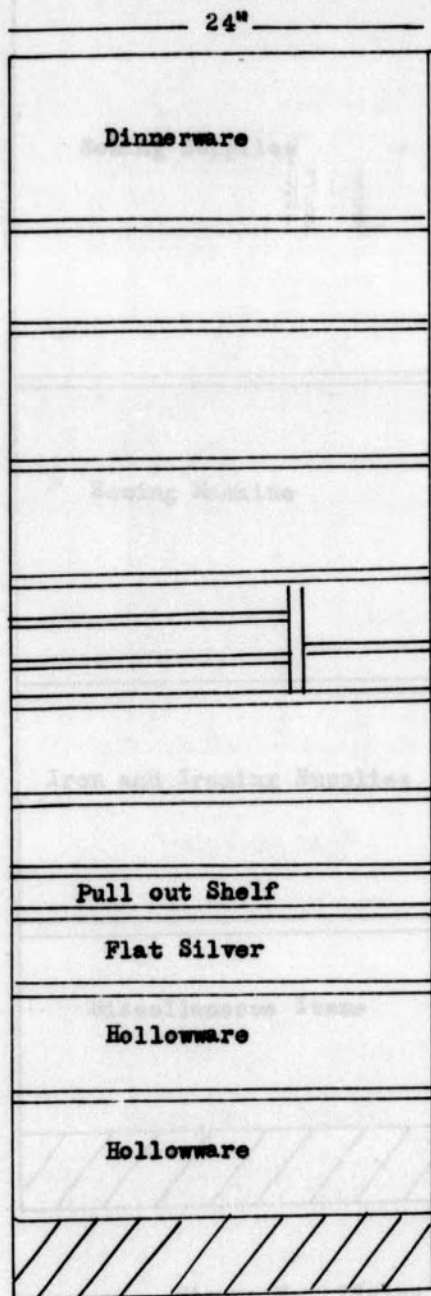


Figure 13. Dining Area View of Storage Units

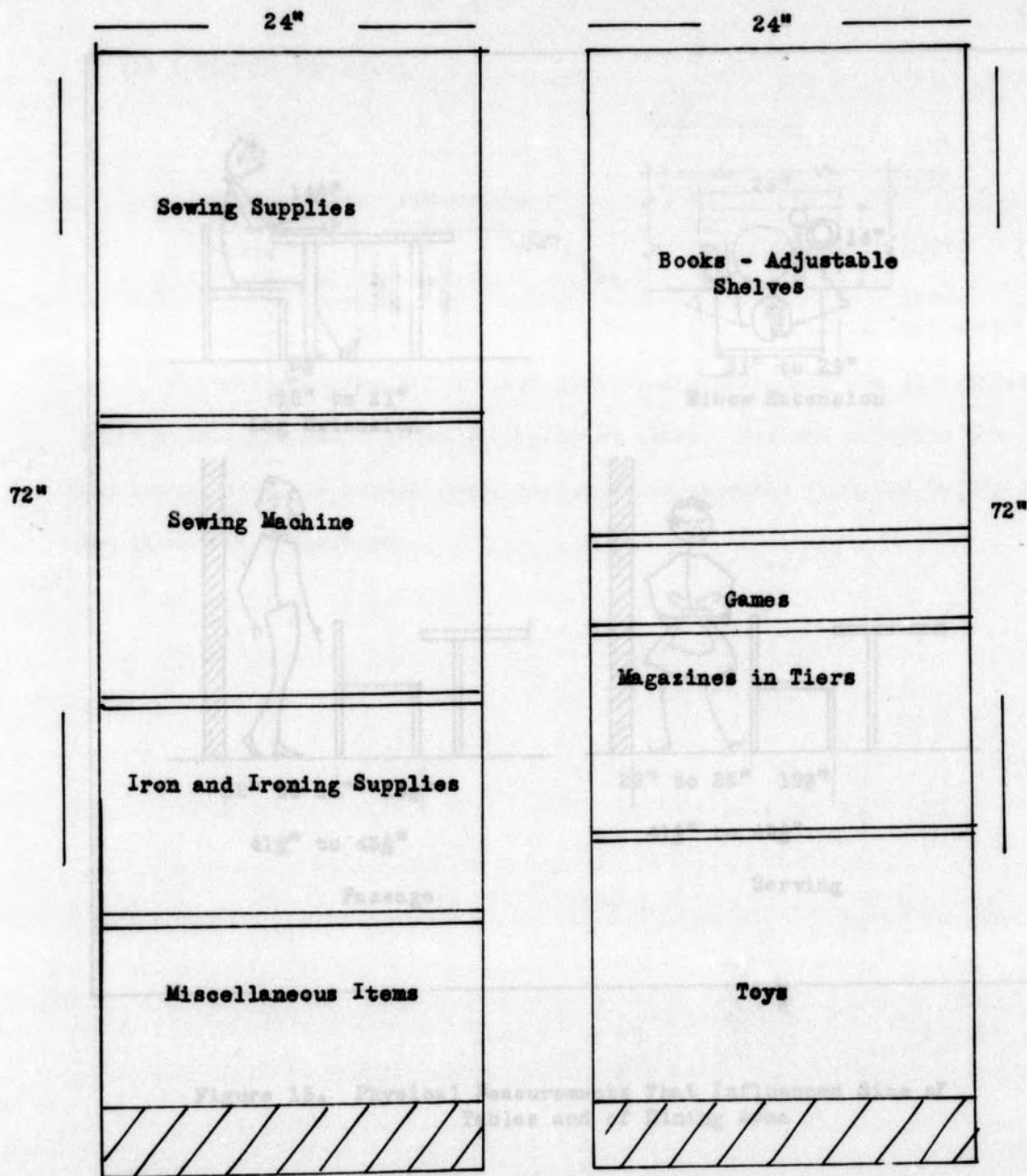


Figure M. Living Room View of Storage Units

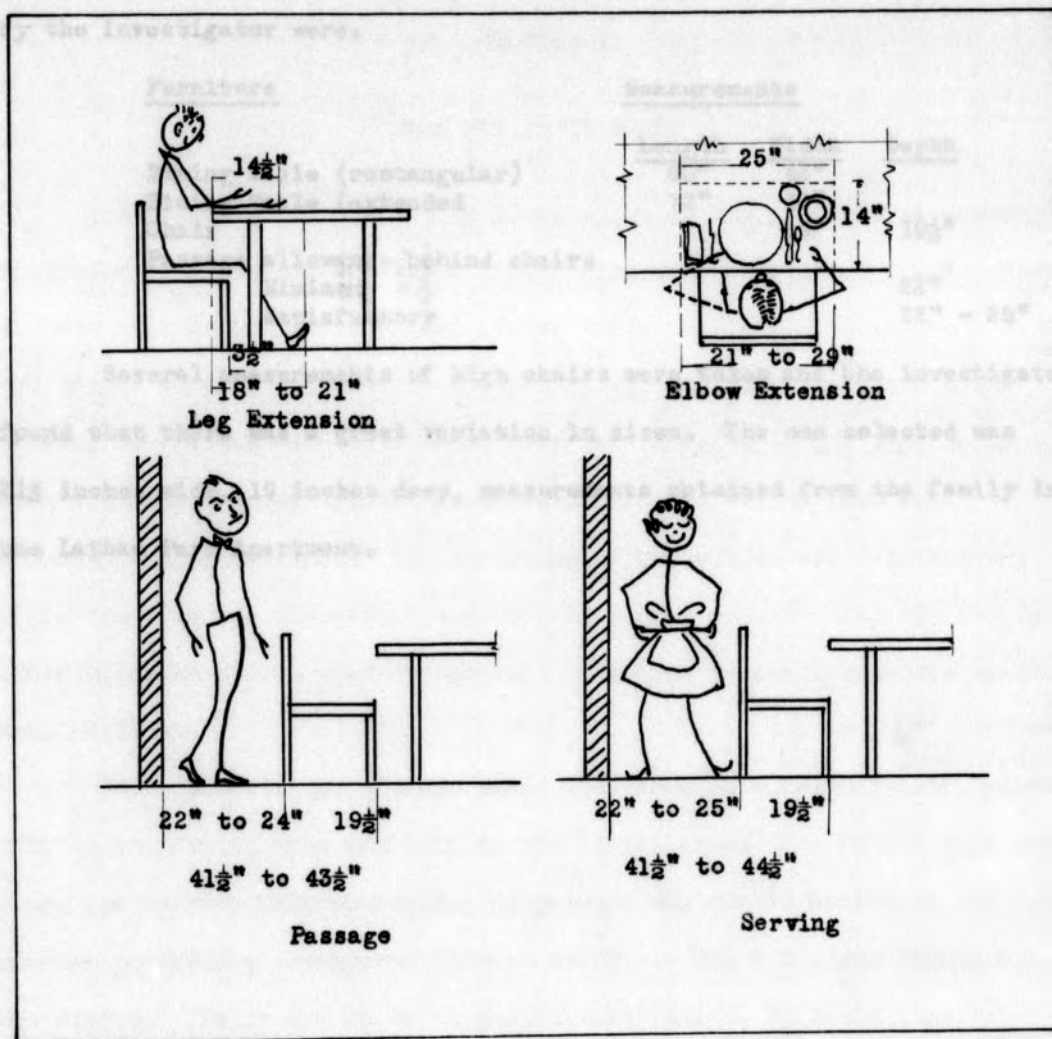


Figure 15. Physical Measurements That Influenced Size of Tables and of Dining Area

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by the investigator were:

Furniture

Measurements

	<u>Length</u>	<u>Width</u>	<u>Depth</u>
Dining Table (rectangular)	60"	42"	
Dining Table (extended)	72"	42"	
Chair		19"	19½"
Passage allowance behind chairs			
Minimum			22"
Satisfactory			22" - 25"

Several measurements of high chairs were taken and the investigator found that there was a great variation in sizes. The one selected was 21½ inches wide, 19 inches deep, measurements obtained from the family in the Latham Park Apartment.

In Figure 19, the storage units were used as a room divider, placed half in the dining area and half in the living area. For family meal service, the storage unit containing dinnerware was placed nearer to the kitchen permitting unimpeded flow of traffic. The table was placed by the window. Chairs are shown in position for dining by solid lines; pushed under the table when not in use they are shown by broken lines. The mother's chair was located nearest the kitchen door. The high chair was placed to the mother's left. Chairs for other family members were placed on the opposite side of the table. Placing chairs on two sides allowed more usable floor space. The extra chair was placed against the wall.

The ironing board, when in use, was placed near the wall, parallel with the structural lines of the room which allowed the feet six inches for

## CHAPTER V

### PLAN FOR FLOOR SPACE

In planning for the use of floor space in the dining area, comfort in dining, the main purpose of a dining room, was considered first. Ease of food service and proximity of dining table to kitchen to insure a minimum amount of time and energy expended by the homemaker influenced the placing of the table. The freedom from interference of the traffic area, view from the window, and the appearance from the living room were secondary considerations. The placement of the window was satisfactory since the view was pleasant. However, if it was undesirable, the dining table might be placed against the wall with some decorative object on the wall above it.

In Figure 16, the storage units were used as a room divider, placed half in the dining area and half in the living area. For family meal service, the storage unit containing dinnerware was placed nearer to the kitchen permitting unhampered flow of traffic. The table was placed by the window. Chairs are shown in position for dining by solid lines; pushed under the table when not in use they are shown by broken lines. The mother's chair was located nearest the kitchen door. The high chair was placed to the mother's left. Chairs for other family members were placed on the opposite side of the table. Placing chairs on two sides allowed more usable floor space. The extra chair was placed against the wall.

The ironing board, when in use, was placed near the wall, parallel with the structural lines of the room which allowed two feet six inches for

Figure 16. Dining Room Area - Functional Arrangement  
Family Dining - Ironing

Scale - 1" = 1'

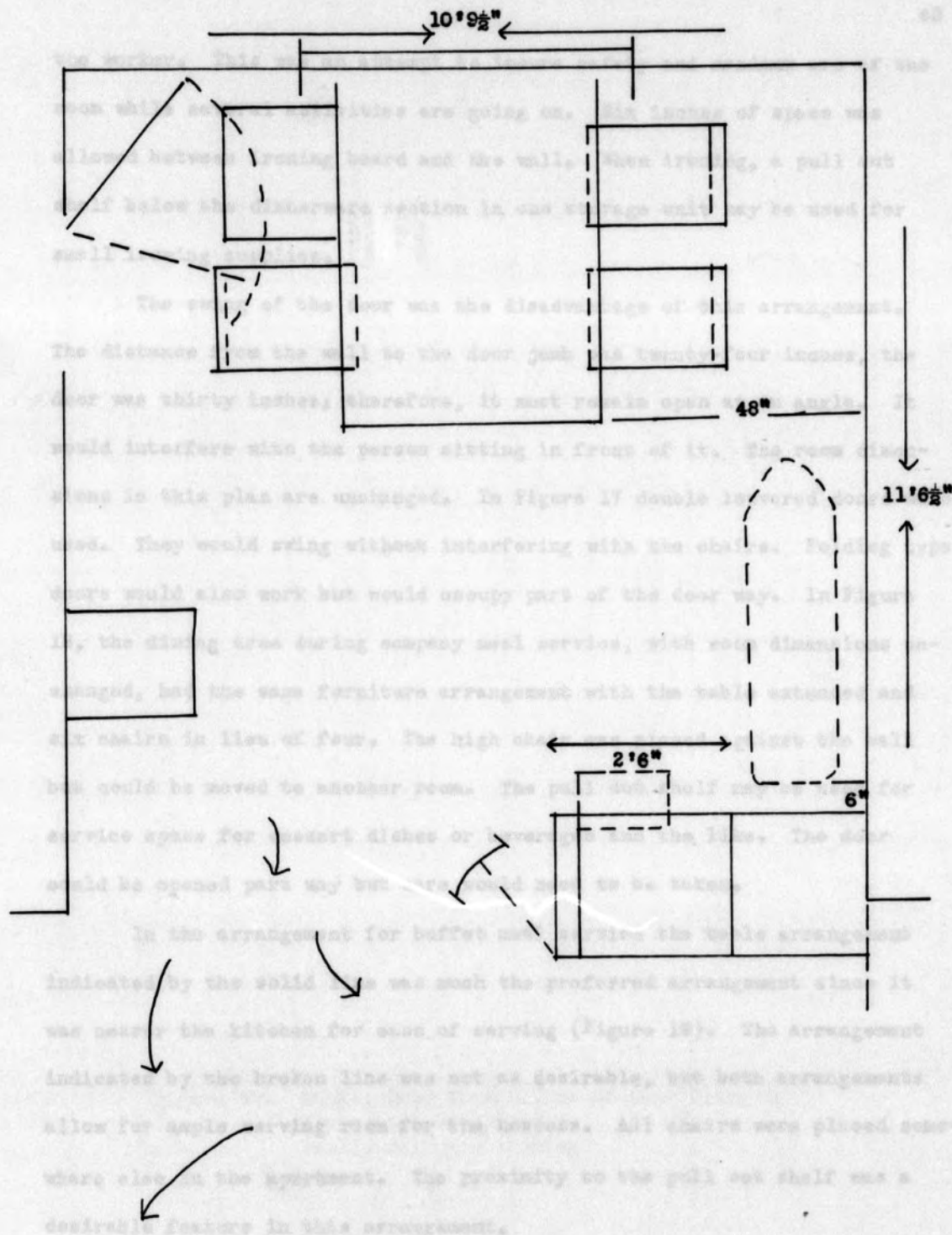


Figure 16. Dining Room Area - Dimensions Unchanged  
Family Dining - Ironing

Scale -  $\frac{1}{2}$ " = 1'

the worker. This was an attempt to insure safety and maximum use of the room while several activities are going on. Six inches of space was allowed between ironing board and the wall. When ironing, a pull out shelf below the dinnerware section in one storage unit may be used for small ironing supplies.

The swing of the door was the disadvantage of this arrangement. The distance from the wall to the door jamb was twenty-four inches, the door was thirty inches; therefore, it must remain open at an angle. It would interfere with the person sitting in front of it. The room dimensions in this plan are unchanged. In Figure 17 double louvered doors were used. They would swing without interfering with the chairs. Folding type doors would also work but would occupy part of the door way. In Figure 18, the dining area during company meal service, with room dimensions unchanged, had the same furniture arrangement with the table extended and six chairs in lieu of four. The high chair was placed against the wall but could be moved to another room. The pull out shelf may be used for service space for dessert dishes or beverages and the like. The door could be opened part way but care would need to be taken.

In the arrangement for buffet meal service the table arrangement indicated by the solid line was much the preferred arrangement since it was nearer the kitchen for ease of serving (Figure 19). The arrangement indicated by the broken line was not as desirable, but both arrangements allow for ample serving room for the hostess. All chairs were placed somewhere else in the apartment. The proximity to the pull out shelf was a desirable feature in this arrangement.

When the dimensions of the dining area were reversed, width



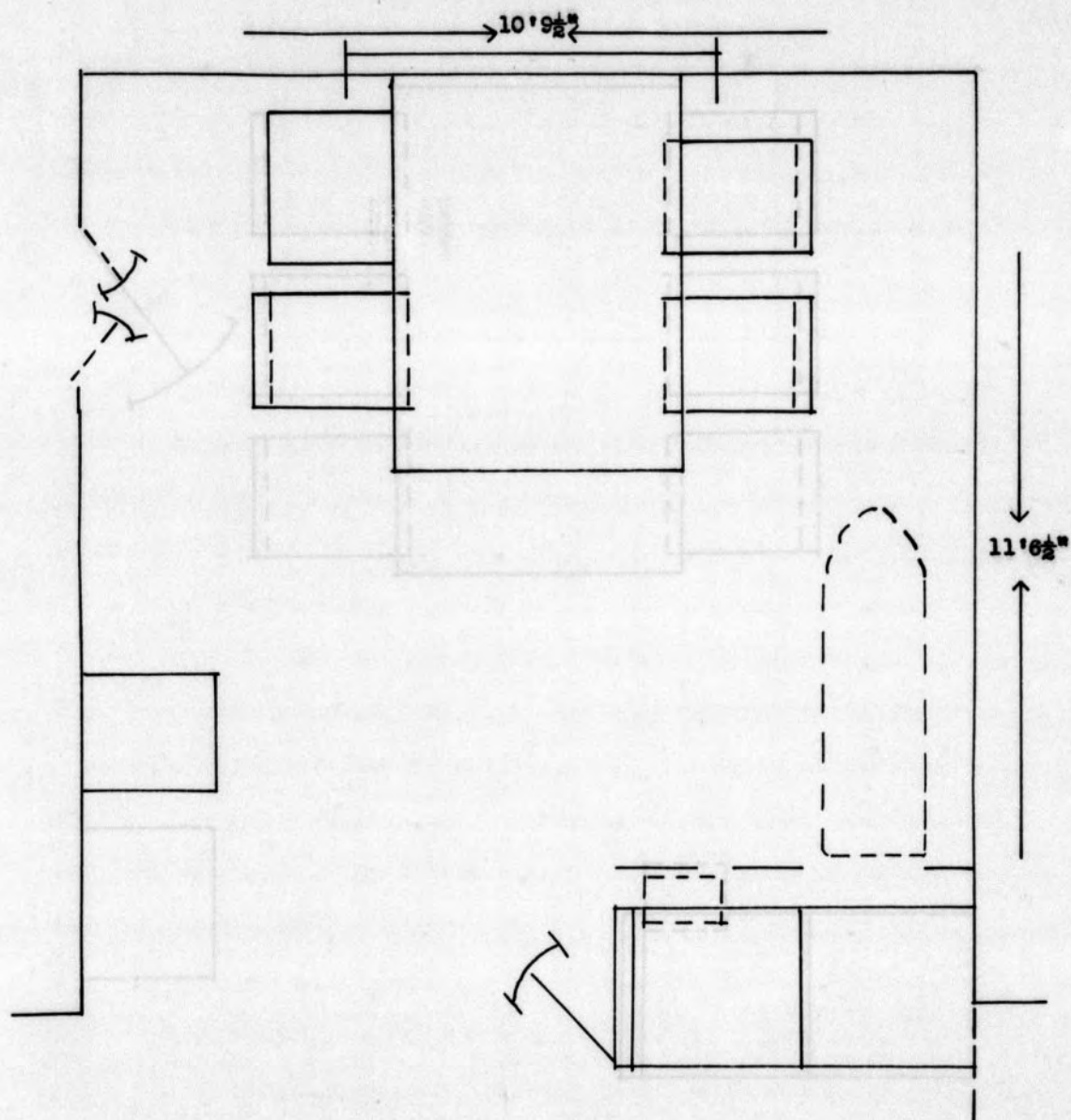


Figure 17. Dining Room Area - Type of Door Changed,  
Dimensions Unchanged  
Family Dining - Ironing

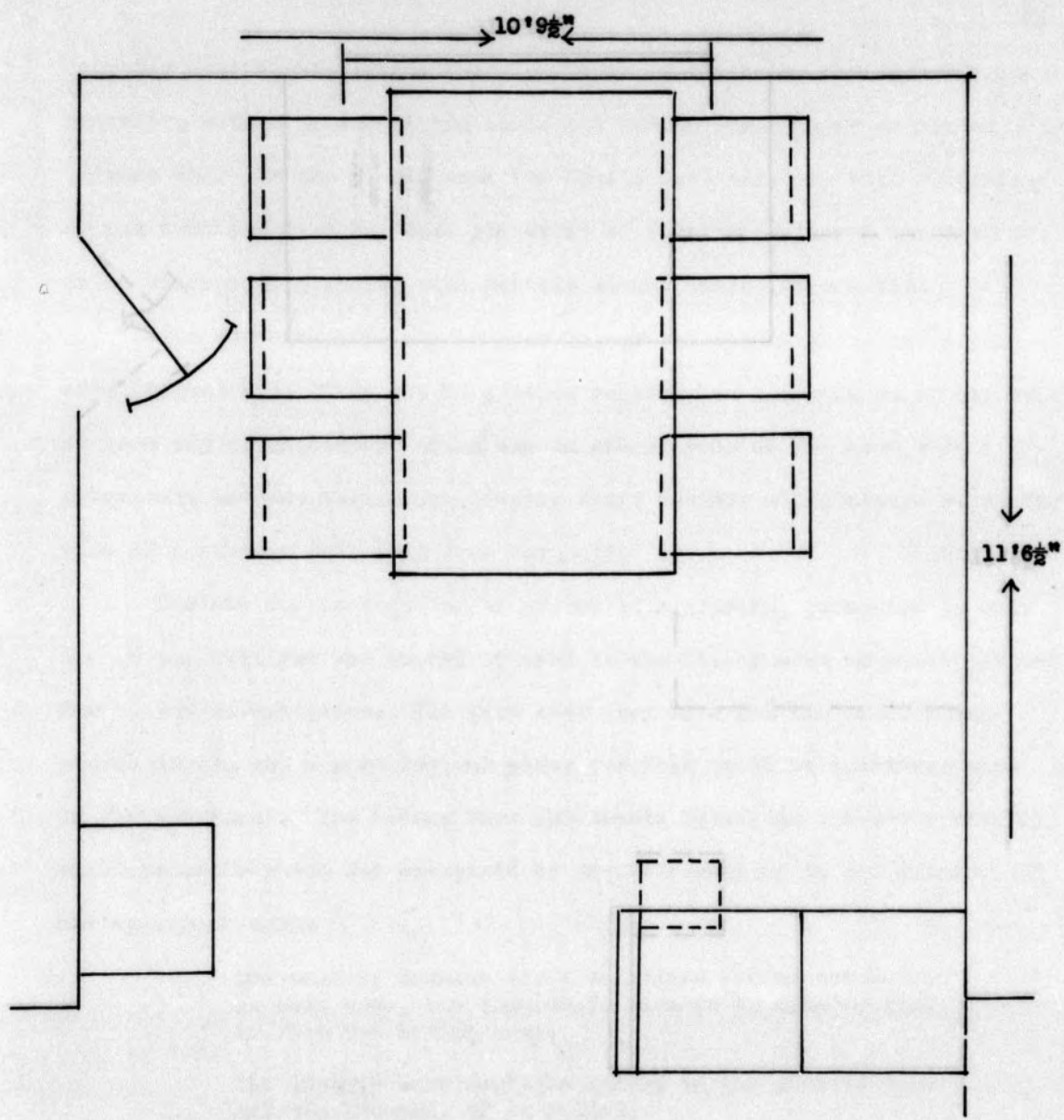


Figure 18. Dining Room Area - Dimensions Unchanged  
Company Meal

Swivel Seats with Room for Person to Serve Either Position

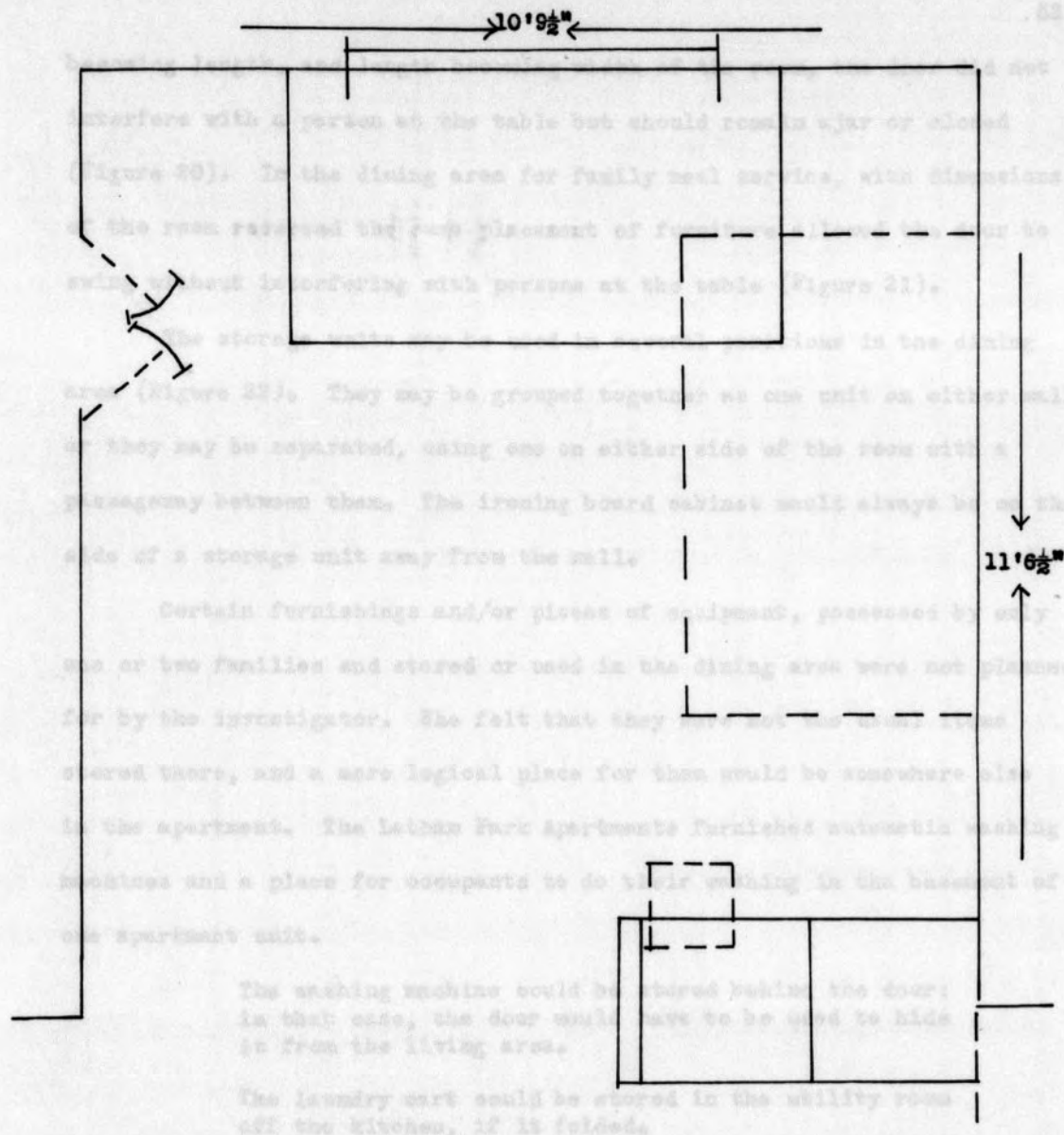


Figure 19. Dining Room Area - Type of Door Changed, Dimensions  
Unchanged  
Buffet Meal with Room for Person to Serve Either Position



becoming length, and length becoming width of the room, the door did not interfere with a person at the table but should remain ajar or closed (Figure 20). In the dining area for family meal service, with dimensions of the room reversed the same placement of furniture allowed the door to swing without interfering with persons at the table (Figure 21).

The storage units may be used in several positions in the dining area (Figure 22). They may be grouped together as one unit on either wall; or they may be separated, using one on either side of the room with a passageway between them. The ironing board cabinet would always be on the side of a storage unit away from the wall.

Certain furnishings and/or pieces of equipment, possessed by only one or two families and stored or used in the dining area were not planned for by the investigator. She felt that they were not the usual items stored there, and a more logical place for them would be somewhere else in the apartment. The Latham Park Apartments furnished automatic washing machines and a place for occupants to do their washing in the basement of one apartment unit.

The washing machine could be stored behind the door; in that case, the door would have to be used to hide it from the living area.

The laundry cart could be stored in the utility room off the kitchen, if it folded.

The basket of unironed clothes was recognized as a necessity until the clothes were ironed. The investigator assumed that the homemaker would plan to store them in the dining area only while the ironing was being done or for as short a time as possible.

The ironer, owned by one family, might have to be in the dining area, either behind the door or in the

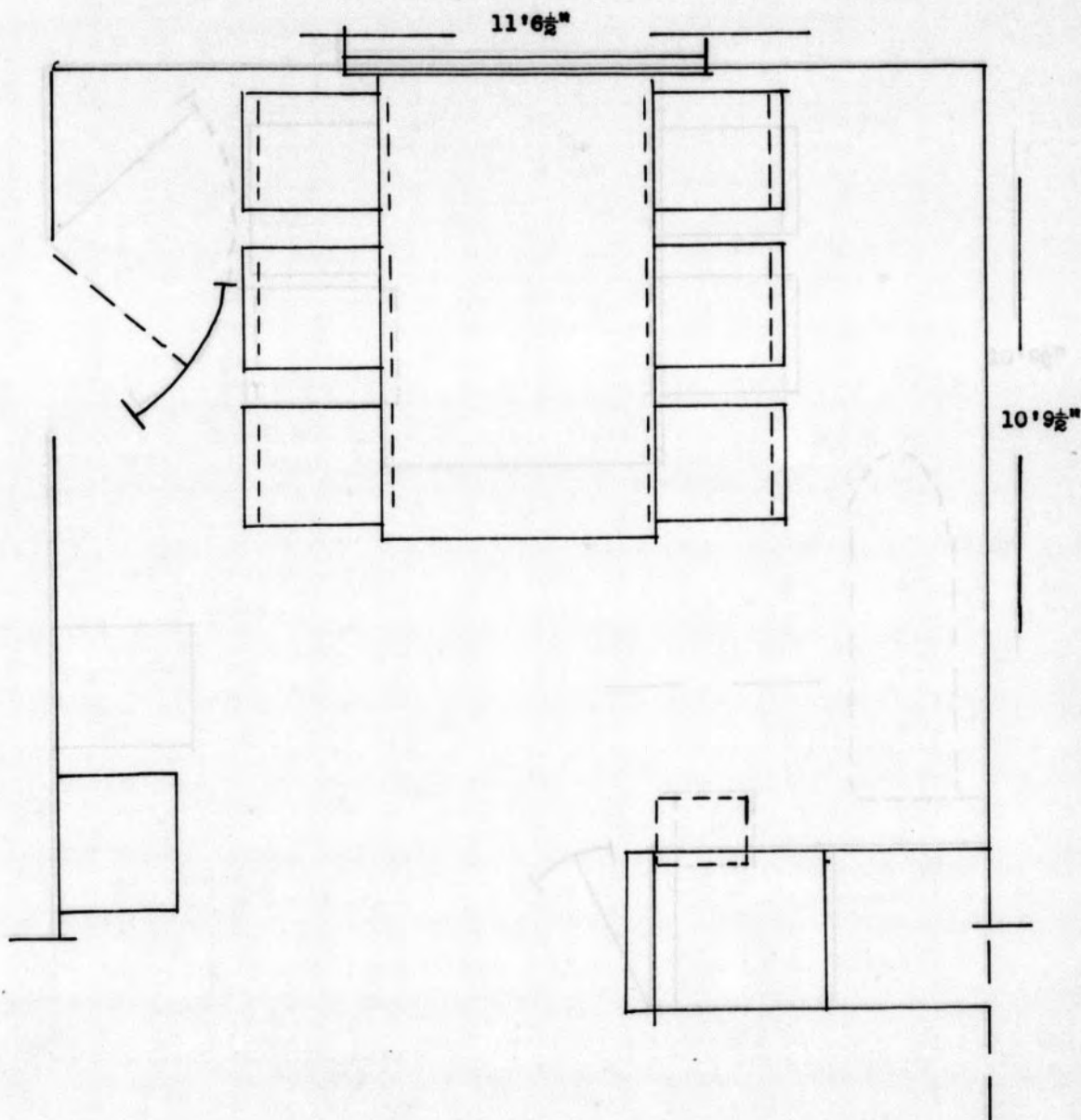


Figure 20. Dining Room Area - Dimensions Reversed  
Company Meal

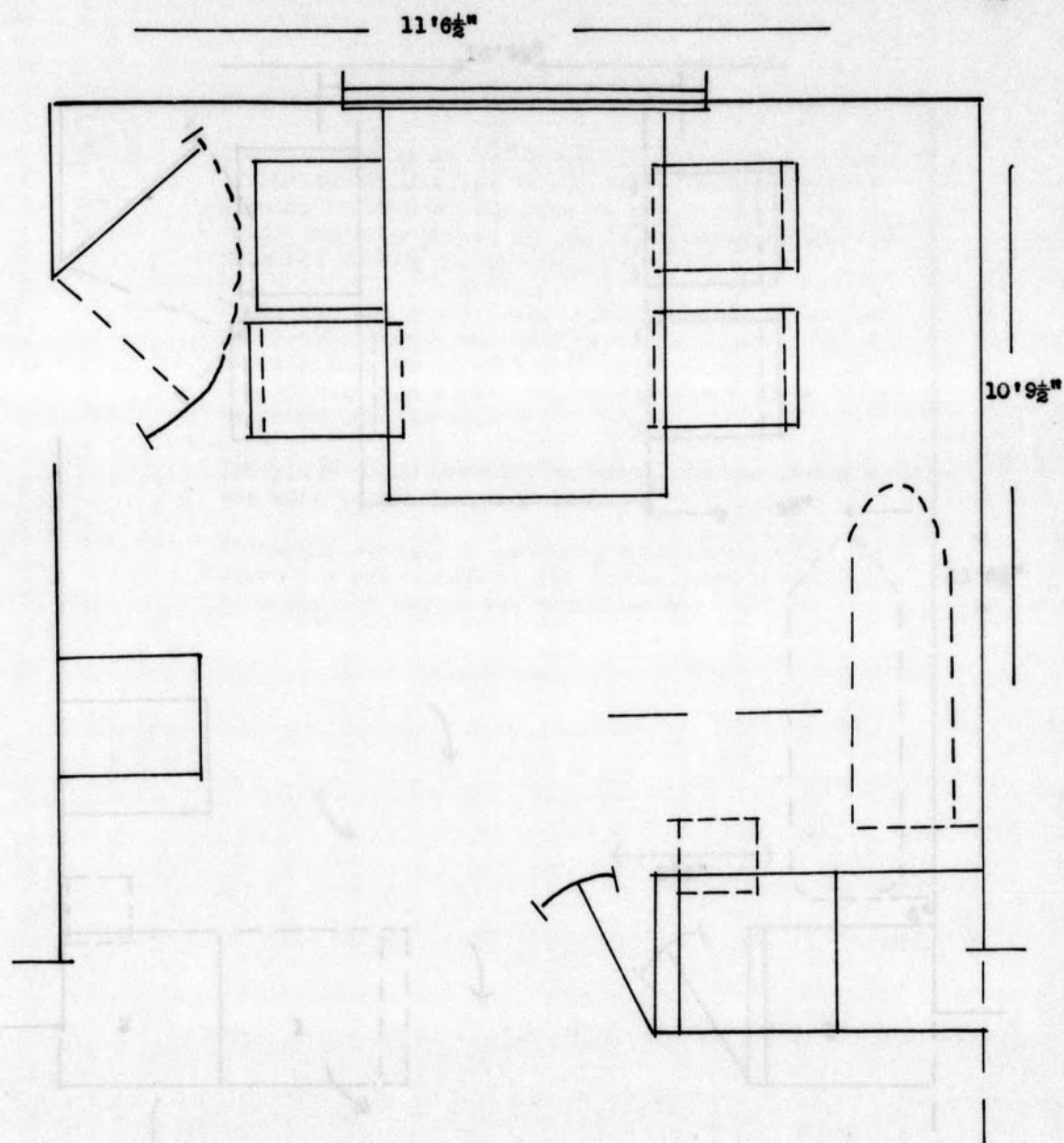


Figure 21. Dining Room Area - Dimensions Reversed  
Family Dining - Ironing

Figure 22. Dining Room Area - Dimensions Exchanged  
Alternate Positions of Storage Units

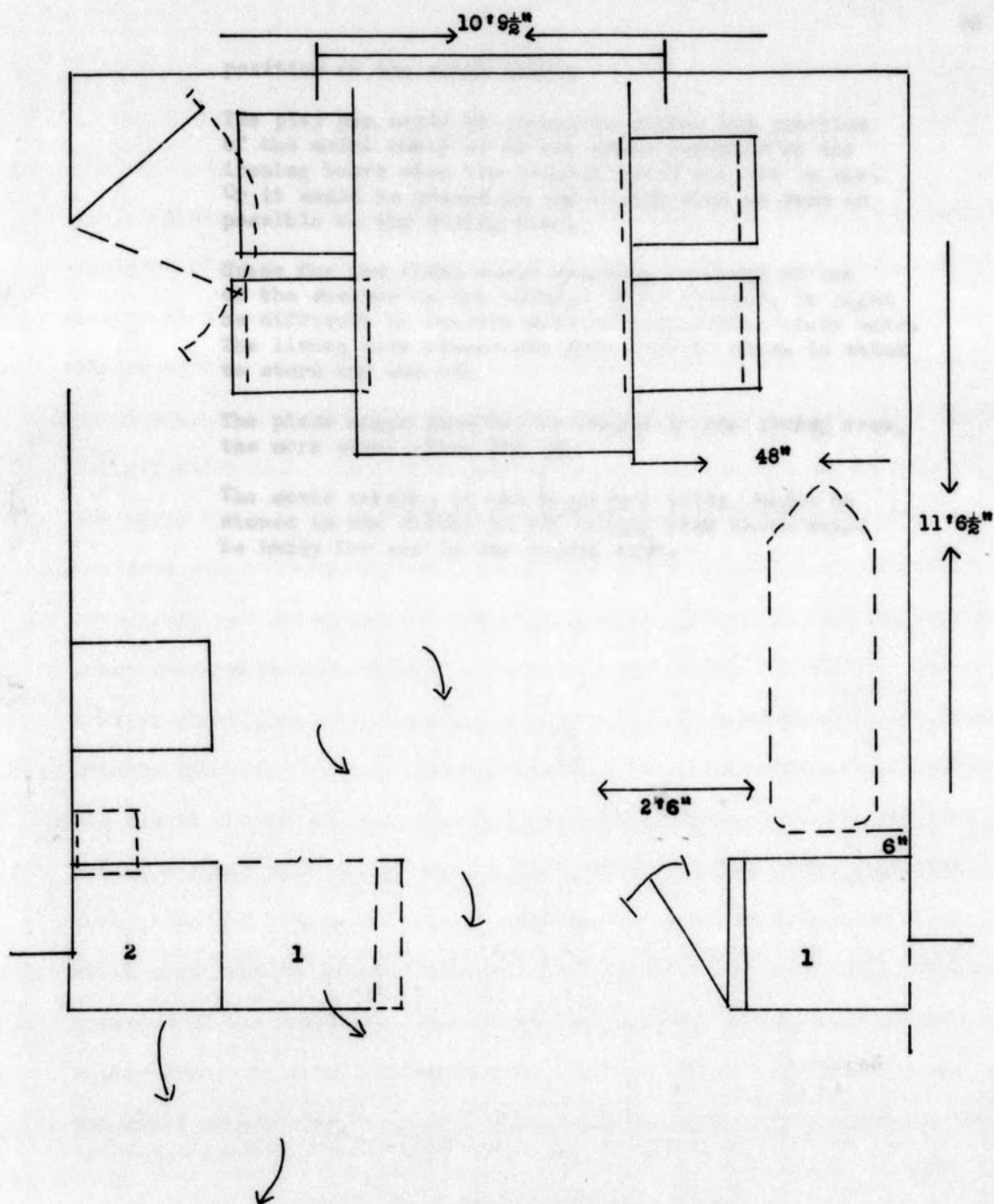


Figure 22. Dining Room Area - Dimensions Unchanged  
Alternate Positions of Storage Units



position of the extra chair.

The play pen could be placed in either the position of the extra chair or in the space occupied by the ironing board when the ironing board was not in use. Or it could be placed in the living area as near as possible to the dining area.

Space for the radio could probably be found on one of the shelves in the storage unit; however, it might be difficult to operate with no comfortable chair near. The living room seemed the more logical place in which to store and use it.

The piano might possibly be stored in the living area, the more usual place for it.

The movie screen, if not used very often, might be stored in the closet in the living area which would be handy for use in the dining area.

#### Activities

The investigator planned for eight specific activities carried on in the dining area by a large proportion of the thirty families studied.

## CHAPTER VI

### SUMMARY OF FINDINGS AND RECOMMENDATIONS

A need that is commonly expressed by homemakers is more and better designed storage space for household articles. The purpose of this study was to plan for the activities carried on by families in a specified dining area by designing functional storage units and arranging the furniture, storage units, windows, and doors within the given floor space for effective use. The dining area chosen for study was the largest of the three types in Campbell's study of the dining alcoves of thirty business and professional families in Greensboro in 1950. The families were young and had preschool children; most of them were planning to buy homes soon. The size of the dining alcove was 11'6½" by 10'9½". The area of floor space was 124 square feet. It had one window and one door leading into the kitchen. The placement of the window was satisfactory. The alcove opened into the living area. The largest dining alcove was chosen because half of the ten families who had dining areas this size were satisfied with them; and the investigator thought that more items which were used in the dining alcove should be stored there than was the practice of the families. The writer accepted the limitations of 124 square feet, one door and one window, but reserved the right to change the shape of the area.

#### Activities

The investigator planned for eight specific activities carried on in the dining area by a large proportion of the thirty families studied.



The activities were; company meals, family meals, playing games, ironing, office work, talking with visitors, study, reading and writing, and machine and hand sewing. The miscellaneous activities as decorating the Christmas tree, wrapping gifts, storage of piano music, and materials used in hobbies.

Furniture, Furnishings, Supplies and Equipment  
Used in Activities and for Storage

The table and chairs were the major pieces of furniture in the dining area. In addition to being used by all of the thirty families for meals they were used for most of the other activities which went on in this area. In summarizing the furniture and storage problem, of course, all of the families had dining tables and chairs of some type. In addition, half of the families had a high chair, and a china closet or buffet. The thirty families also had one other item per family of furniture or equipment that took up floor space. More families kept furnishings for both family and company meal service outside of the dining area than kept them in the dining area. Of the few families who had storage in the dining area for these furnishings almost all considered the space adequate. None of the storage outside the dining area was considered adequate by a large proportion of families.

In her design for the dining area, the investigator chose to plan for the dining table, four or six chairs, high chair and one or two pieces of storage furniture. She also planned for the ironing board to be stored and to be set up temporarily. She chose for convenience to store in the dining area the furnishings, supplies and equipment used in all the activities listed above except family meal service. She felt that furnishings used in family meal service were logically stored in the

kitchen, the practice of most families.

#### Amount of Storage and Floor Space Needed

Dimensions of the area for storage of various groups of items and for floor space were adapted from recognized authorities when available. Some dimensions were estimated by the investigator. Certain physical measurements of the individual influenced the size of tables and of the dining area.

#### Design of Storage Units

Two multi-purpose storage units were designed as a movable room divider. They were 72 inches high, 24 inches wide, and 24 inches deep, opening to both dining and living areas.

Dinnerware and silver were stored in one cabinet accessible from the dining area. Linen and trays were stored in the other cabinet accessible from the dining area along with materials and supplies for office work, and for study, reading and writing.

Recreational materials such as books, games, magazines, and toys, were stored in one cabinet accessible from the living room area but handy for use in the dining area as well as the living area. Sewing supplies, sewing machine, iron, ironing supplies and miscellaneous items were stored in the other cabinet accessible from the living area. These items are used in the dining area but probably less frequently than those stored on the dining area side.

In dining alcoves as large as those in Latham Park Apartments, the two storage units could stand side by side against either side wall of

the dining area or could be separated and placed against opposite side walls with a passage way between them. An additional section 72 inches high, 4 inches deep, and 24 inches wide was designed for ironing board storage. It might be attached to either end of either storage unit. The storage units were designed to occupy a minimum amount of space and to be used with a minimum amount of time and energy expended in getting out and returning the items used.

#### Plan for Floor Space

Comfort in dining, ease of food service, proximity to kitchen, freedom from interference with traffic area, view from the window and the appearance from the living room were the factors considered. Seven floor arrangements of the furniture and storage units were suggested.

Suggestions were made for the placement of furnishings and equipment used in activities in the dining area or stored there by one or two families: washing machine, laundry cart, basket of unironed clothes, ironer, play pen, radio, piano, and movie screen. Individual families would have to make adjustments to serve their particular activities.

#### Conclusions

Storage units similar to those designed by the investigator are needed to hold the possessions used in the activities carried on by most families in the dining area. If such storage units were available on the market, families could buy them and use them in the apartment and later in a house. If they were supplied by the apartment house they would be a tremendous help in solving the temporary storage problem. They might

be an attractive feature to renters, even though the rent would have to be increased.

The dining area may be improved without any major structural changes by the installation of double louvered doors or a folding type door, in lieu of present door into kitchen. The families might even remove the present door and install an inexpensive type of vertical bamboo material on a traverse rod for their temporary use while occupying the apartments. These types could remain open most of the time but closed during company meal service.

The dining area could also be improved by reversing the dimensions provided that the construction costs would not be prohibitive; and provided the rest of the apartment could be adjusted to this change satisfactorily.

#### Recommendations for Further Study

It would be desirable to have the storage units built and actually tested during various activities within the dining area in the Latham Park Apartments, and other apartments.

Different arrangements of the storage units and the furniture of particular families should be tried out for their effectiveness during use.

A study of the comparative cost of conventional pieces of storage furniture versus functional storage units would also be recommended.



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